SERVICE MANUAL

DATSUN 1200

MODEL B110 SERIES

CHASSIS AND BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

Rev. 2-71 P/N 99999-20019

DATSUN 1200

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FOREWORD

This service manual has been prepared for the purpose of assisting service personnels of our distributors and dealers for effective service and maintenance of DATSUN 1200 (model B110) series.

Since proper maintenance and service are most essential to satisfy our customers by keeping their cars in the best condition, this manual should be read carefully. The followings should be noted for effective utilization of this manual.

1. *Explanations in this manual are mainly concerning the model B110U (right hand drive) but will easily be referred also for the left hand drive models and for the version models.*

2. *Please, refer to both this and A10 & A12 SERIES ENGINE SERVICE MANUAL for complete details of the car, because this manual describes information concerning the chassis and body only.*

3. *All part name in this manual conform to DATSUN 1200 PARTS CATALOG, and only the genuine service parts listed in this parts catalog should be used for replacements.*

4. *All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval.*

5. *It is emphasized that those who use this manual revise the contents according to the SERVICE JOURNAL and SERVICE DATA AND SPECIFICATIONS issued by the factory, which carry the latest factory approved servicing method.*

6. *Rights for alteration in specifications and others at any time are reserved.*

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GI

SECTION GI

GENERAL INFORMATION

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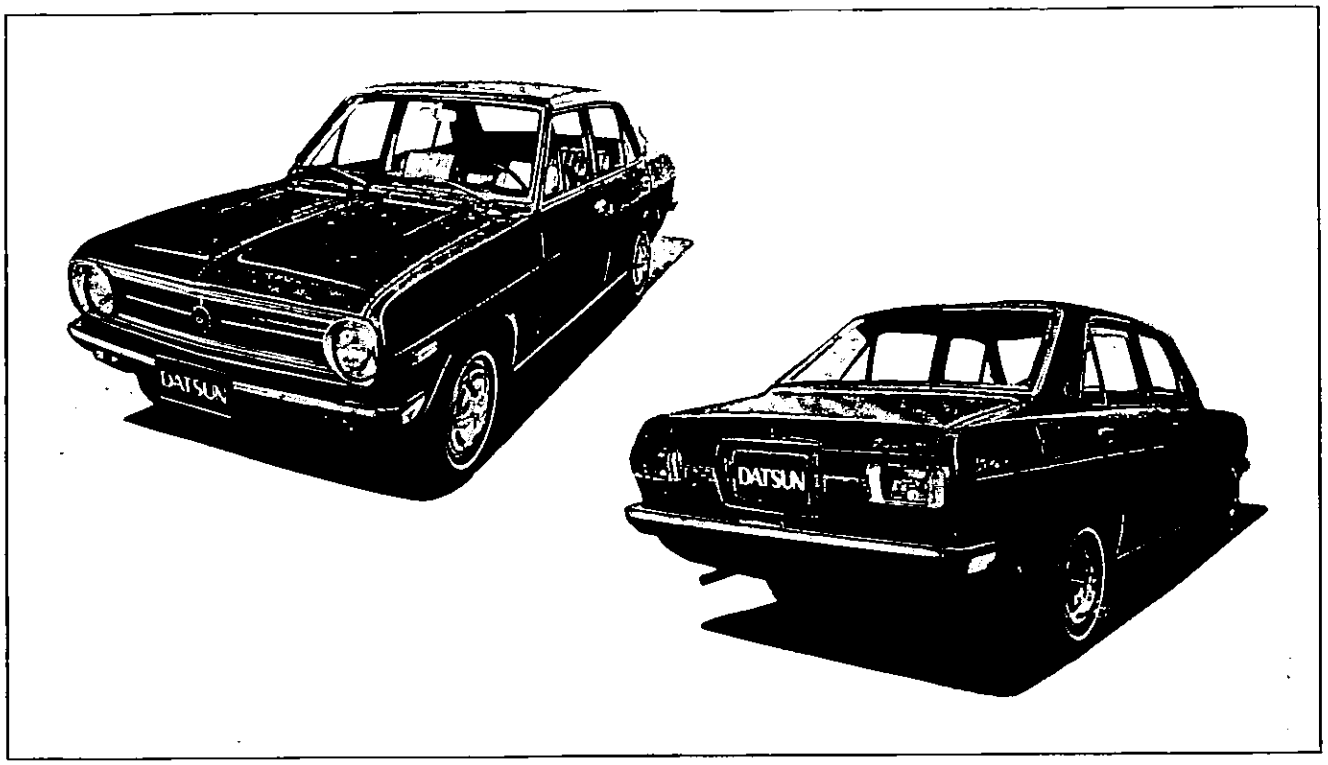


Fig. GI-1 4 door Sedan

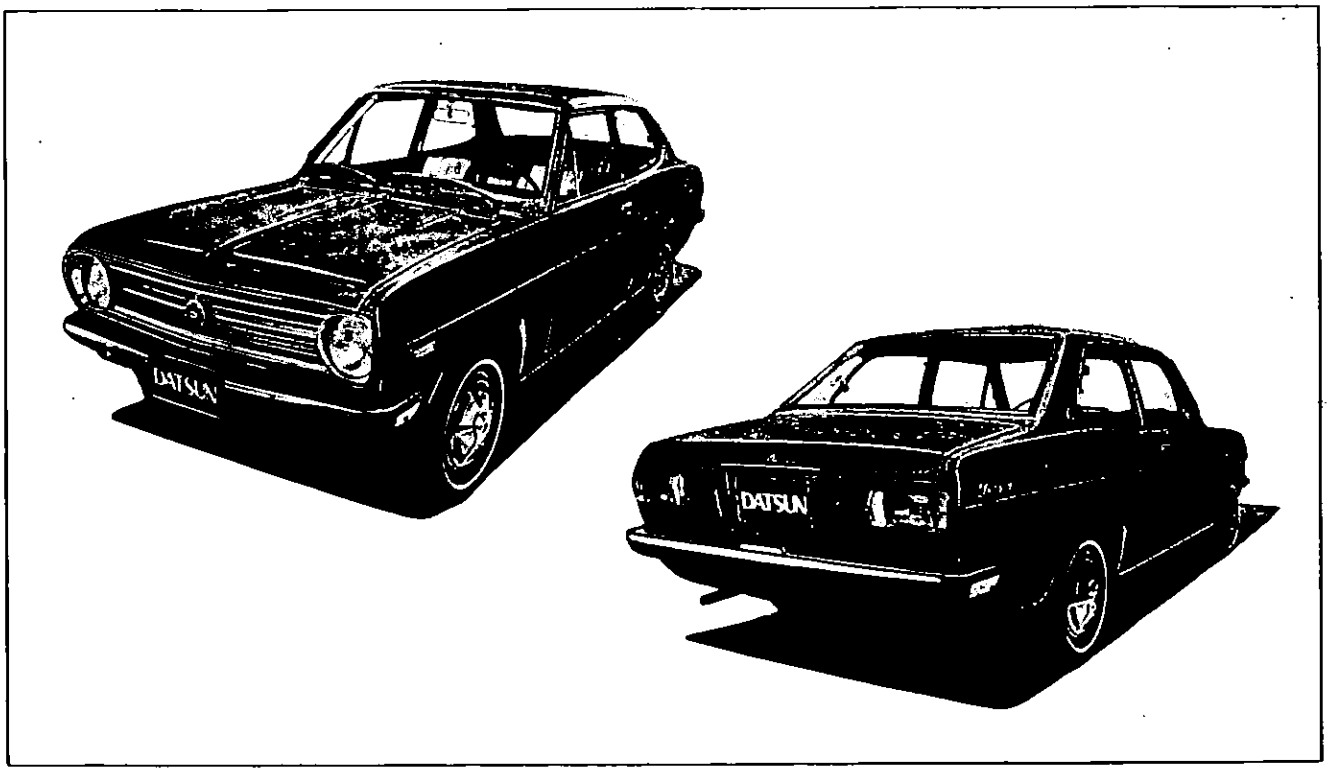


Fig. GI-2 2 door Sedan

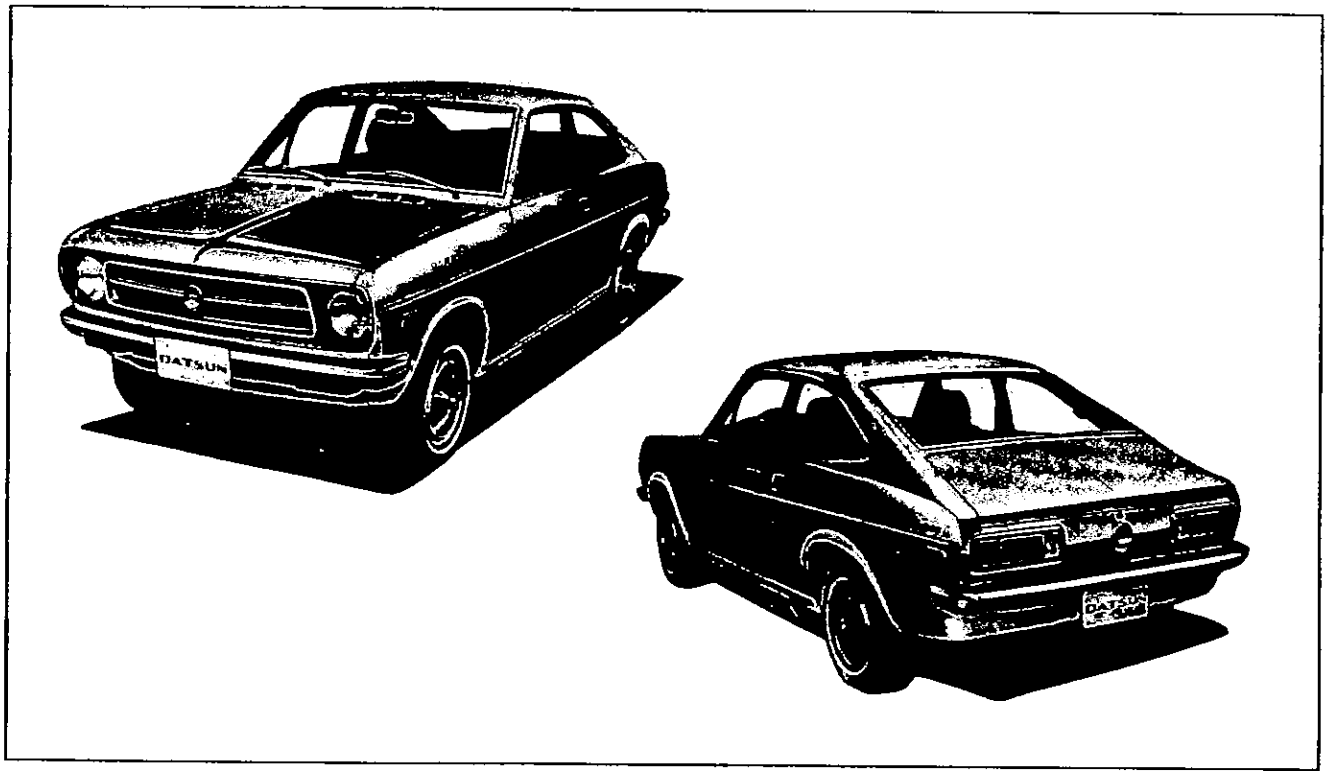


Fig. GI-3 Coupe

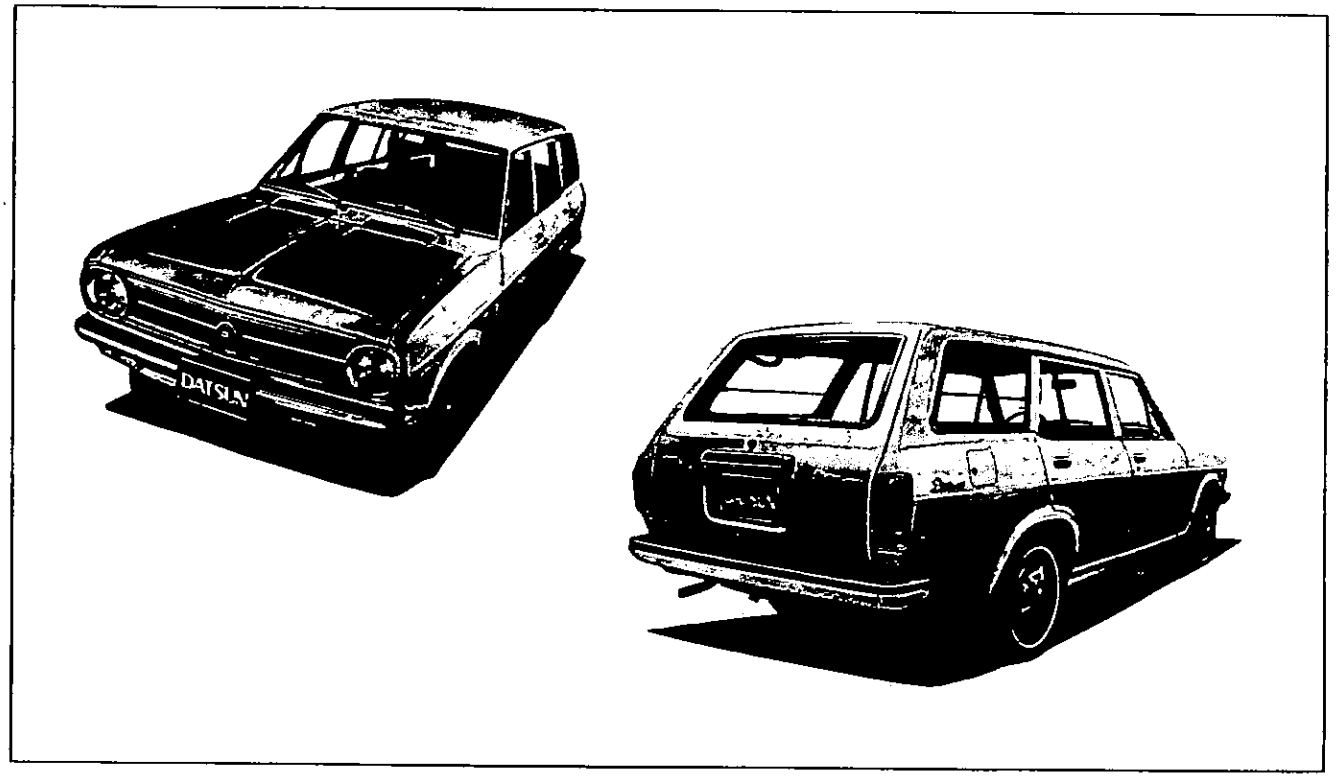


Fig. GI-4 Wagon (or Van)

MODEL IDENTIFICATION

Item \ Model		Vehicle model		Engine model	Transmission – Speeds	Remarks
		R.H drive	L.H drive			
4 door sedan	Deluxe	B110U	–	A12	R3W56 – 3	
		B110TU	LB110T		F4W56 – 4	
		B110AU	LB110A		3N71A – 3	
	Standard	B110SU	–		R3W56 – 3	
		B110STU	LB110ST		F4W56 – 4	
		B110SAU	–		3N71A – 3	
2 door sedan	Deluxe	B110RU	–		R3W56 – 3	
		B110TRU	LB110TR		F4W56 – 4	
		–	LB110TRU		F4W56 – 4	for CANADA
		–	LB110TRN		F4W56 – 4	for CANADA
		B110ARU	LB110AR		3N71A – 3	
	Stand-ard	B110SRU	–		R3W56 – 3	
		B110STRU	LB110STR		F4W56 – 4	
Wagon & Van	Deluxe	VB110U	–		R3W56 – 3	
		VB110TU	VLB110T		F4W56 – 4	
	Stand-ard	VB110SU	–		R3W56 – 3	
		VB110STU	VLB110ST		F4W56 – 4	
Coupe	Deluxe	KB110U	KLB110		F4W56 – 4	
		–	KLB110U		F4W56 – 4	for U.S.A. & CANADA
		–	KLB110N		F4W56 – 4	for CANADA

IDENTIFICATION NUMBER

The identification number is stamped on the instrument panel, and can be seen from outside. (For U.S.A.)

The body number plate identifies the type of car, engine capacity, maximum horse power (SAE), wheel base, engine number and car number.

The body number plate is attached to the right side cowl top panel.

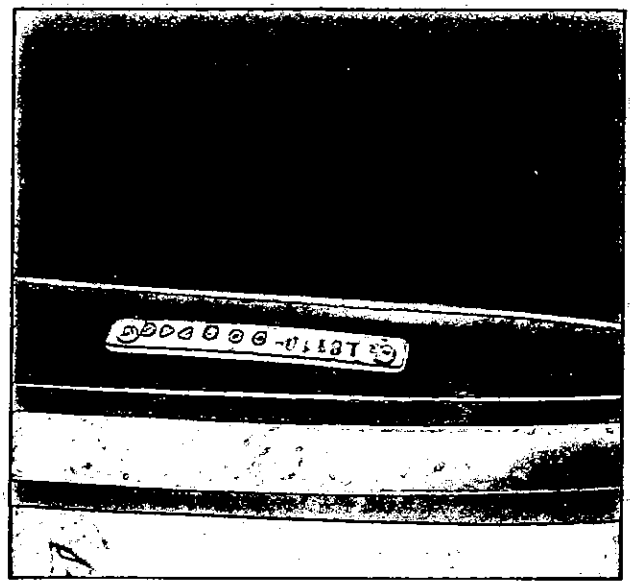


Fig. GI-5 Identification number (for U.S.A.)

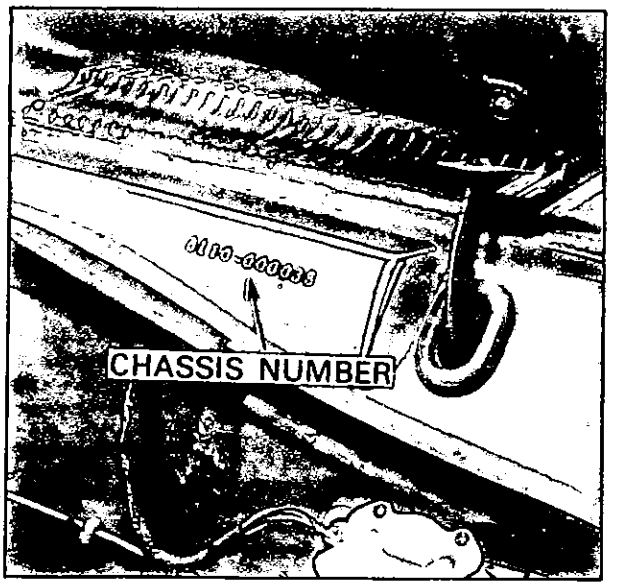


Fig. GI-6 Chassis number location

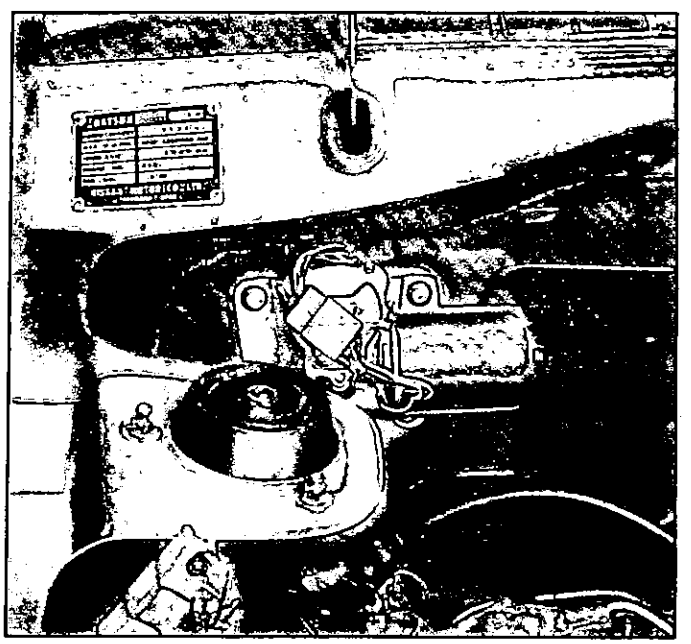
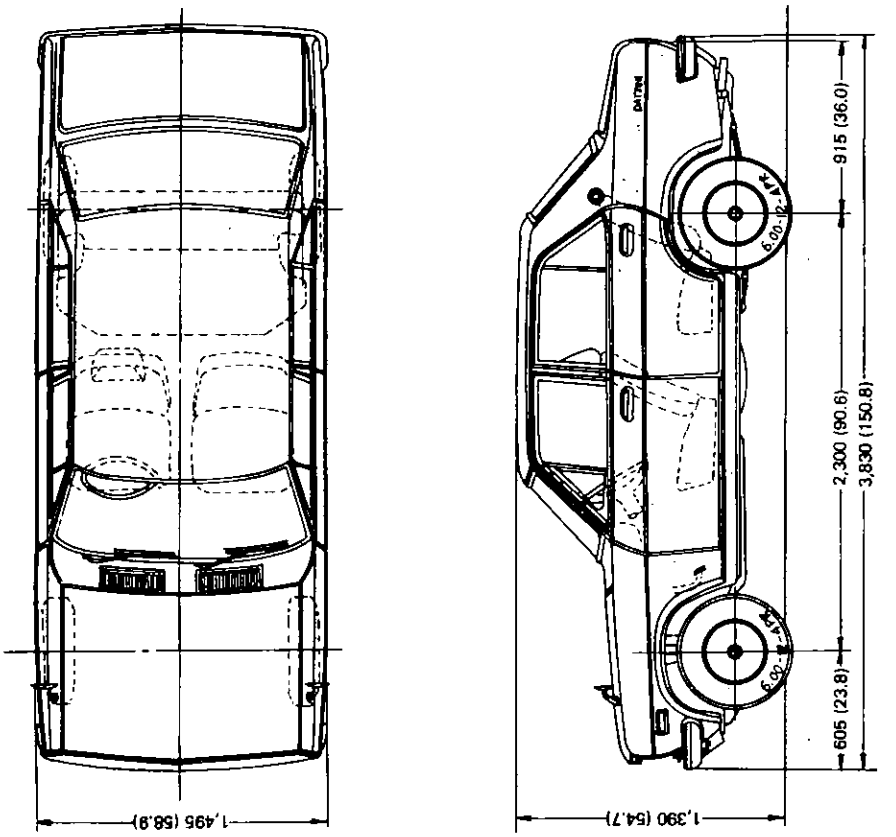


Fig. GI-7 Body number plate

GENERAL VIEWS

UNIT: mm (in)



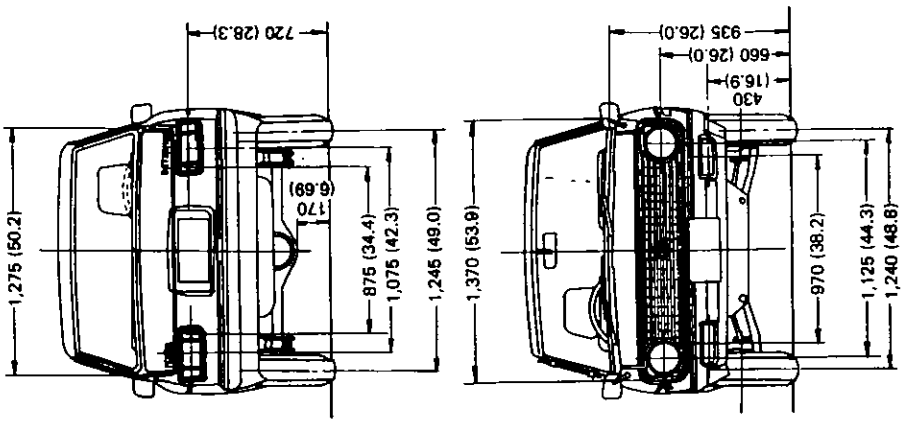


Fig. GI-8 4 door Sedan

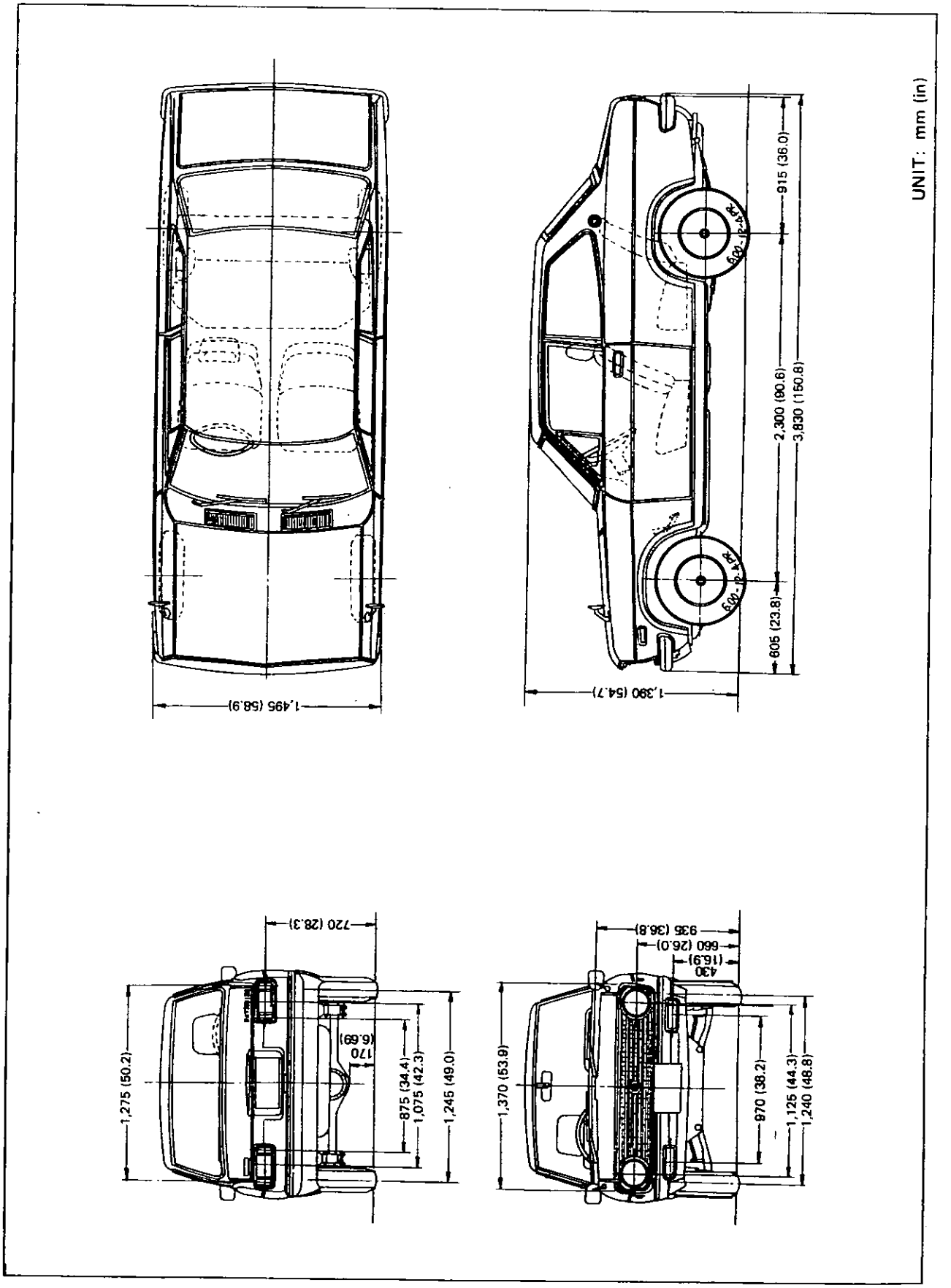


Fig. GI-9 2 door Sedan

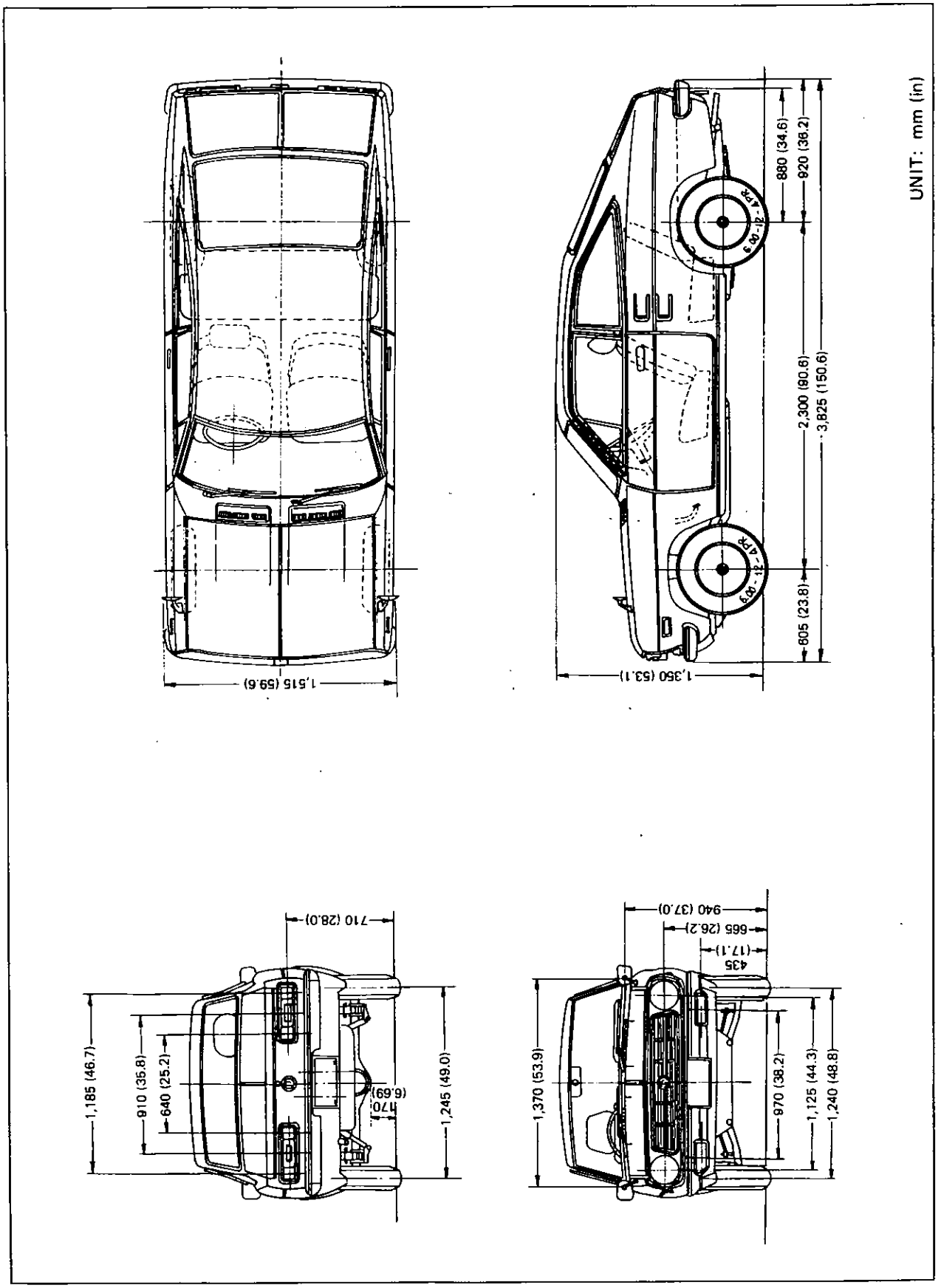


Fig. GI-10 Coupe

UNIT: mm (in)

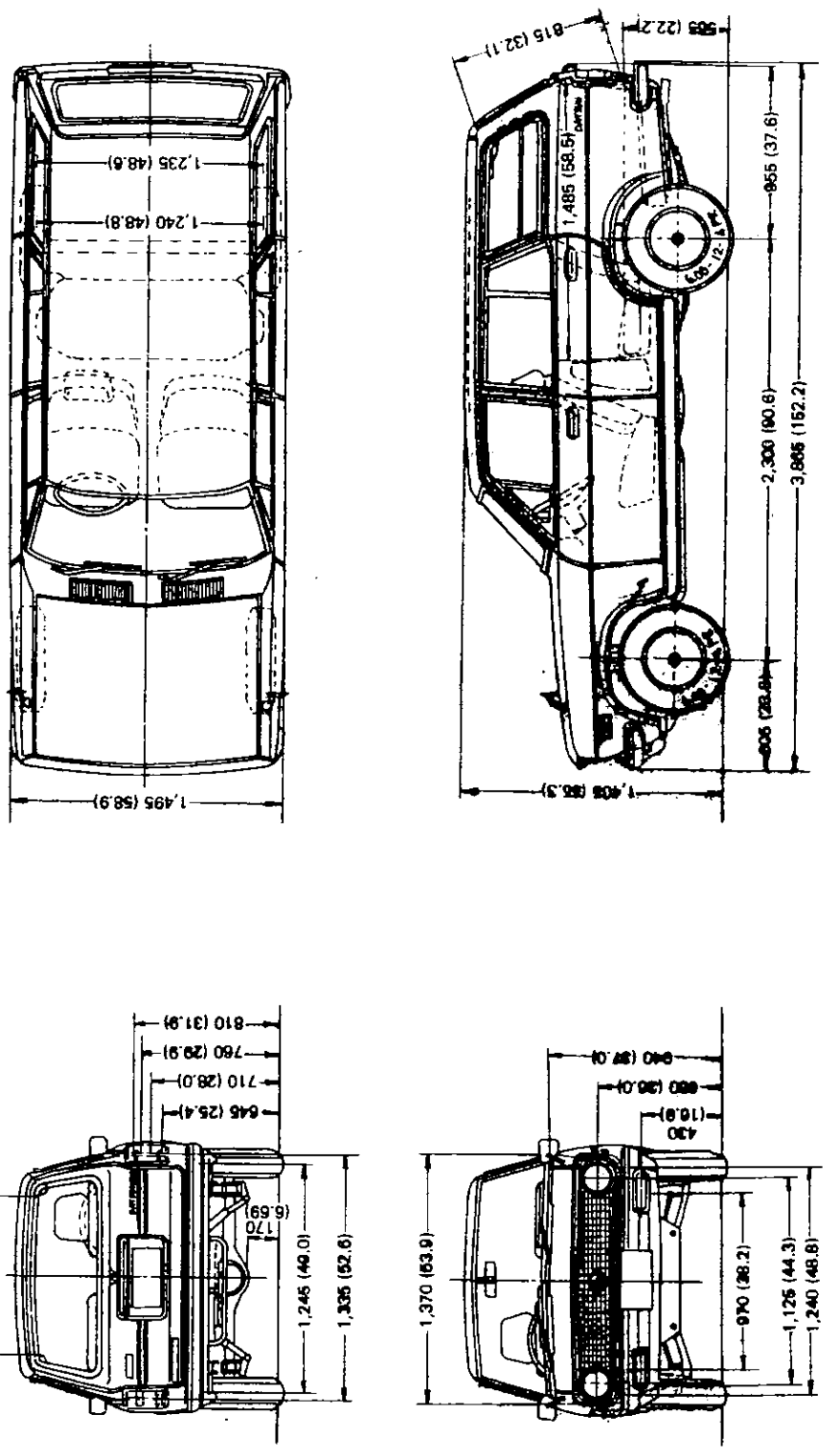


Fig. GI-11 Wagon and Van

GENERAL SPECIFICATIONS

Item \ Model				Four Door Sedan						Two Door Sedan					
				Standard			Deluxe			Standard		Deluxe			
				B110SU	B110STU LB110ST	B110SAU	B110U	B110TU LB110T	B110AU LB110A	B110SRU	B110STRU LB110STR	B110RU	B110TRU LB110TR	B110ARU LB110AR
Dimension	Overall length	mm (in)		3,830 (150.8)										
	Overall width	mm (in)		1,495 (58.9)										
	Overall height	mm (in)		1,390 (54.7)										
	Wheel base	mm (in)		2,300 (90.6)										
	Room space Length	mm (in)		1,690 (66.5)										
	Room space Width	mm (in)		1,270 (50.0)										
	Room space Height	mm (in)		1,140 (44.9)										
	Tread Front	mm (in)		1,240 (48.8)										
	Tread Rear	mm (in)		1,245 (49.0)										
Minimum road clearance		mm (in)		170 (6.7)										
Vehicle weight		kg (lb)		695 (1,532)		730 (1,609)	715 (1,576)		750 (1,653)	680 (1,499)		700 (1,543)		735 (1,620)
Performance	Maximum speed	km/h (MPH)		150 (94)		145 (90)	150 (94)		145 (90)	150 (94)				145 (90)
	Maximum grade ability	(sin θ)		0.398	0.418	0.428	0.398	0.418	0.428	0.398	0.418	0.398	0.418	0.428
	Minimum turning radius	m (ft)		4.1 (13.4)										
Seating capacity				4 or 5 persons										
Engine model				A12										
Battery volt capacity				12V-40AH or 50AH										
Fuel tank capacity		ℓ (US gal, Imp gal)		40 (10 ½, 8 ¾)										
Clutch type				Dry single disc, diaphragm spring		Torque converter	Dry single disc diaphragm spring		Torque converter	Dry single disc, diaphragm spring				Torque converter
Transmission type				R3W56	F4W56	3N71A	R3W56	F4W56	3N71A	R3W56	F4W56	R3W56	F4W56	3N71A
Final gear type				Hypoid gear type										
Steering gear type				Re-circulating ball type										
Brake system	Service		Front	Drum, Two leading type										
			Rear	Drum, Leading and trailing type										
	Parking			Mechanically operated on rear wheels										
Suspension			Front	Independent strut type with tension rods and stabilizer										
			Rear	Rigid axle, semi-elliptic leaf springs and shock absorbers										
Tire			Front	6.00-12-4PR										
			Rear	6.00-12-4PR										

CHASSIS

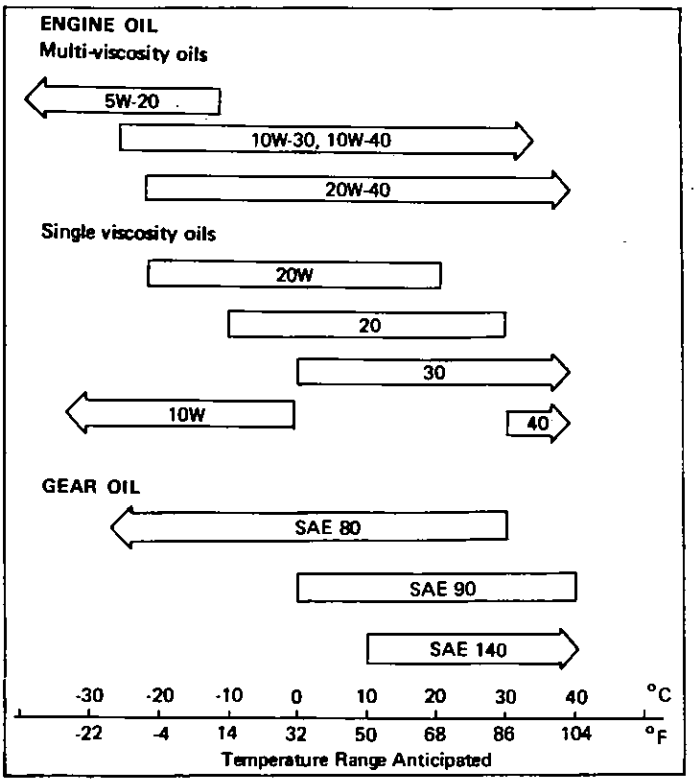
Item \ Model				Wagon and Van				Coupe	For U.S.A. & Canada	
				Standard		Deluxe			Two door sedan	Coupe
				VB110SU	VB110STU VLB110ST	VB110U	VB110TU VLB110T	KB110U KLB110	LB110TRU LB110TRN	KLB110U KLB110N
Dimension	Overall length		mm (in)	3,865 (152.2)				3,820 (150.4)	3,830 (150.8)	3,820 (150.4)
	Overall width		mm (in)	1,495 (58.9)				1,515 (59.6)	1,495 (58.9)	1,515 (59.6)
	Overall height		mm (in)	1,390 (54.7)				1,350 (53.1)	1,390 (54.7)	1,350 (53.1)
	Wheel base		mm (in)	2,300 (90.6)						
	Room space	Length	mm (in)	1,485 (58.5) luggage space				1,620 (63.8)	1,690 (66.5)	1,620 (63.8)
		Width	mm (in)	1,230 (48.4) luggage space				1,270 (50.0)	1,270 (50.0)	1,270 (50.0)
		Height	mm (in)	825 (32.5) luggage space				1,075 (42.3)	1,140 (44.9)	1,075 (42.3)
	Tread	Front	mm (in)	1,240 (48.8)						
		Rear	mm (in)	1,245 (49.0)						
Minimum road clearance			mm (in)	170 (6.7)						
Vehicle weight			kg (lb)	730 (1,609)		750 (1,653)		710 (1,565)	720 (1,587)	730 (1,609)
Performance	Maximum speed		km/h (MPH)	140 (87)				150 (94)	145 (90)	
	Maximum grade ability		sin θ	0.372	0.417	0.372	0.417	0.418		
	Minimum turning radius		m (ft)	4.1 (13.4)						
Seating capacity				5 persons or 2 + 400 kg (880 lb) luggage				4 or 5 persons		
Engine model				A12						
Battery volt capacity				12V-40AH or 50AH						
Fuel tank capacity			ℓ (US gal, Imp gal)	38 (10, 8 3/8)					40 (10½, 8¾)	38 (10, 8 3/8)
Clutch type				Dry single disc, diaphragm spring						
Transmission type				R3W56	F4W56	R3W56	F4W56	F4W56	F4W56	F4W56
Final gear type				Hypoid gear type						
Steering gear type				Re-circulating ball type						
Brake system	Service	Front		Drum, Two leading type				Drum, Two leading type or Disc, Annet type		
		Rear		Drum, Leading and trailing type						
	Parking			Mechanically operated on rear wheels						
Suspension		Front		Independent strut type with tension rods and stabilizer						
		Rear		Rigid axle, semi-elliptic leaf springs and shock absorbers						
Tire		Front		6.00-12-4PR or 5.00-12-4PR ULT				6.00-12-4PR		
		Rear		6.00-12-4PR or 5.00-12-6PR ULT				6.00-12-4PR		

FINAL, TRANSMISSION AND SPEEDOMETER RATIOS

Item \ Model			B110(S)U B110(S)RU VB110(S)U	B110(S)TU, LB110(S)T B110(S)TRU, LB110(S)TR LB110TRU LB110TRN VB110(S)TU, VLB110(S)T KB110U, KLB110 KLB110U KLB110N	B110(S)AU LB110A B110ARU LB110AR
Final gear ratio			3.900	3.900	3.900
Transmission	Type		R3W56	F4W56	3N71A
	Control system		Steering column shift	Floor shift	Floor shift
	Gear ratio	1st	3.380	3.757	2.458
		2nd	1.734	2.169	1.458
		3rd	1.000	1.404	1.000
		4th	–	1.000	–
		Reverse	3.640	3.640	3.640
Speedometer gear ratio			17/5 (18/5 for Van)	17/5 (18/5 for Van)	17/5

RECOMMENDED LUBRICANTS AND PERIODICAL MAINTENANCE

RECOMMENDED SAE VISCOSITY NUMBER



			TEXACO	CHEVRON	CALTEX	CASTROL	BP	ESSO (ENCO)	MOBIL	SHELL
ENGINE OIL	Gasoline	Multi grade MIL-L-2104B API MS	Havoline Motor Oil 10W-30, 20W-40	RPM Supreme Motor Oil 10W-30, 20W-40	Custom Five Star Motor Oil 10W-30, 20W-40	Castrolite 10W-30 Castrol XL20W-40 Castrol GTX20W-50*	BP Super V Vis-costatic 5W-20, 10W-30, 20W-50*	Esso (Enco) Uniflo 5W-30, 10W-40* Esso (Enco) Extra Motor Oil 10W-30, 20W-40	Mobiloil Special 10W-30 Mobiloil Super 10W-40*	Shell X100 10W-30, 20W-40
		Regular MIL-L-2104B API MS	Havoline Motor Oil 10W 20W-20, 30, 40	RPM Special Motor Oil 10W, 20W-20, 30, 40	Five Star Motor Oil 10W, 20W-20, 30, 40	Castrol HD 5W, 10W, 20W-20 30, 40, 50	BP Energol HD 10W, 20W, 30, 40	ESSO (Enco) Motor Oil 10W, 20W-20, 30, 40 50	Mobiloil 10W, 20W-20 30, 40, 50	Shell X100 10W, 20W, 30, 40 50
GEAR OIL	T/M Gear	MIL-L-2105 API GL-4	Universal Gear Lubricant EP80, EP90	RPM Multi-Service Gear Lubricant 80, 90, 140	Universal Thuban 80, 90	Castrol Hypoy 80, 90	BP Gear Oil 80EP, 90EP, 140EP	Esso (Enco) Gear Oil GP 80, 90, 140	Mobilube GX or EP 80, 90, 140	Shell Spirax 80EP, 90EP, 140EP
	Diff. Gear	MIL-L-2105B API GL-5	Multi Gear Lubricant EP 80, 90, 140	RPM Universal Gear Lubricant 80, 90, 140	Multipurpose Thuban EP 80, 90, 140	Castrol Hypoy B 80, 90	BP Hypogear Oil Universal 80, 90, 140	Esso (Enco) Gear Oil GX 80, 90, 140	Mobilube HD 80-90, 90, 140	Shell Spirax HD 80, 90, 140
A.T.F.		3N71A (Type F)	Texamatic Fluid 6991 Texamatic 4571A	RPM ATF Special	Texamatic Fluid 6991 Texamatic 4571A	Castrol TQF	BP Autran B	Esso (Enco) Glide	Mobil ATF 210	Shell ATF Donax T7
Multi-purpose Grease MIL-G-2108, MIL-G-10924			Marfak Multi-purpose* Marfak All Purpose*	RPM Multi-motive Grease*	Marfak Multi-purpose* Marfak All Purpose*	Castrol LM*	BP Energrease L2*	Esso (Enco) Multi-purpose grease H*	Mobil grease MP*	Shell Retinax A
BRAKE FLUID		Brake & Clutch 70R3	Brake Fluid Super HD	Atlas Extra HD Brake Fluid 400	Brake Fluid HD	Castrol Girling Brake & Clutch Fluid Crimson	BP Brake Fluid	Esso (Enco) Hydraulic Brake Fluid HD 400	Mobil Super HD Brake Fluid	Shell Donax B
		Disc Brake 70R3				Castrol Girling Brake Fluid Amber	BP Disc Brake Fluid	Esso (Enco) Hydraulic Brake Fluid HD 400	Mobil Super HD* Brake Fluid	
ANTI-FREEZE COOLANT			Anti-Freeze Coolant*	Atlas Perma Guard* Anti-freeze and Coolant	Anti-freeze Coolant	Castrol Anti-freeze	BP Anti-frost	Atlas Perma Guard*	Mobil Freezone*	Shellzone

* Should the above brand of oils not be available, it is permissible to use oils marked *

MAINTENANCE CHART

LUBRICATING POINTS	MAINTENANCE INTERVAL													
Number of thousands of kilometers (miles)	1 (0.6)	5 (3)	10 (6)	15 55 (9 33)	20 60 (12 36)	25 65 (15 39)	30 70 (18 42)	35 75 (21 45)	40 80 (24 48)	45 85 (27 51)	50 (30)	90 (54)	95 (57)	100 (60)
Change engine oil	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Change or check transmission differential gear oil level, top up if necessary	R	X	X	X	X	X	X	X	X	X	R	X	X	R
Check automatic transmission fluid level, top up if necessary	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Refill brake fluid reservoir (disc brake)					X				X					X
Refill brake fluid reservoir (drum brake)									X					
Change cooling water			X		X		X		X		X	X		X
Change cooling water (L.L.C.)									X					
Grease distributor shaft & cam heel			X		X		X		X		X	X		X
Lubricate accelerator linkage			X		X		X		X		X	X		X
Lubricate foot operated pedal bushings					X				X					X
Grease hand brake linkage									X					
Check steering gear box oil level, top up if necessary			X		X		X		X		X	X		X
Grease steering linkage ball joints											X			X
Grease suspension ball joints											X			X
Repack wheel bearing grease											X			X
Grease propeller shaft joints											X			X

R : Replacement

ENGINE SERVICE POINTS (Except U.S.A. and CANADA)	MAINTENANCE INTERVAL													
Number of thousands of kilometers (miles)	1 (0.6)	5 (3)	10 (6)	15 55 (9 33)	20 60 (12 36)	25 65 (15 39)	30 70 (18 42)	35 75 (21 45)	40 80 (24 48)	45 85 (27 51)	50 (30)	90 (54)	95 (57)	100 (60)
Replace carburetor air cleaner element									X					
Check or replace spark plugs			X		R		X		R		X	X		R
Check or replace distributor breaker points		X	X	X	X	X	X	X	X	X	X	X	X	X
Replace oil filter		X	X		X		X		X		X	X		X
Replace cartridge type fuel strainer					X				X					X
Retighten cylinder head bolts and manifold nuts	X													
Adjust valve clearance	X		X		X		X		X		X	X		X
Check and adjust ignition timing	X		X		X		X		X		X	X		X
Check fan belt tension	X		X		X		X		X		X	X		X
Adjust engine idling		X	X		X		X		X		X	X		X
Check fuel line (hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check engine for oil and water leaks	X		X		X		X		X		X	X		X
Check battery specific gravity	X				X				X					X

R : Replacement

ENGINE SERVICE POINTS
(For U.S.A. and CANADA)

ENGINE EQUIPPED WITH EMISSION CONTROL SYSTEM	MAINTENANCE INTERVAL Number of thousands of kilometers (miles)													
	1 (0.6)	5 (3)	10 (6)	15 55 (9 33)	20 60 (12 36)	25 65 (15 39)	30 70 (18 42)	35 75 (21 45)	40 80 (24 48)	45 85 (27 51)	50 (30)	90 (54)	95 (57)	100 (60)
Replace carburetor air cleaner element									X					
Check or replace spark plugs		X	X	X	R	X	X	X	R	X	X	X	X	R
Check or replace distributor breaker points		X	X	X	R	X	X	X	R	X	X	X	X	R
Replace oil filter		X	X		X		X		X		X	X		X
Replace cartridge type fuel strainer									X					
Retighten cylinder head bolts and manifold nuts	X													
Adjust valve clearance	X		X		X		X		X		X	X		X
Check and adjust ignition timing	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check high tension cables					X				X					X
Check fan belt tension	X		X		X		X		X		X	X		X
Adjust engine idling	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Engine tune-up					X				X					X
Check fuel line (hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check engine for oil and water leaks	X		X		X		X		X		X	X		X
Check battery specific gravity	X				X				X					X
Check hose & piping connections for loose (P.C.V.)					X				X					X
Check emission control valves for operation					X				X					X

R : Replacement

CHASSIS & BODY SERVICE POINTS	MAINTENANCE INTERVAL													
Number of thousands of kilometers (miles)	1 (0.6)	5 (3)	10 (6)	15 55 (9 33)	20 60 (12 36)	25 65 (15 39)	30 70 (18 42)	35 75 (21 45)	40 80 (24 48)	45 85 (27 51)	50 (30)	90 (54)	95 (57)	100 (60)
Check clutch & brake pedal free play	X		X		X		X		X		X	X		X
Check clutch & brake system (cylinders, hoses, pipings, connections, etc.) for leaks or defects	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check foot & hand brake operation		X	X		X		X		X		X	X		X
Check brake linings and liners (drums or discs) for wear					X				X					X
Check disc brake pads			X	X	X	X	X	X	X	X	X	X	X	X
Overhaul brake cylinders & caliper assembly											X			X
Check hydraulic shock absorber					X				X					X
Check and retighten suspension parts	X		X		X		X		X		X	X		X
Check and retighten steering gear box and linkage	X		X		X		X		X		X	X		X
Adjust front wheel bearing pre-load											X			X
Check wheel discs for damage			X		X		X		X		X	X		X
Check wheel balance and rotate wheel position			X		X		X		X		X	X		X
Check front wheel alignment and turning angle					X				X					X
Retighten propeller shaft universal joint flange bolts	X				X				X					X
Check head light aiming											X			X
Road test	X		X		X		X		X		X	X		X

LUBRICANTS CAPACITY

		Liter	U.S.A. measure	Imp. measure
Fuel tank:	Sedan	40 ℓ	10 1/2 gal	8 3/4 gal
	Coupe, Wagon & Van	38 ℓ	10 gal	8 3/8 gal
Cooling system:	with heater	4.9 ℓ	5 3/16 qts	4 - 5/16 qts
	without heater	4.2 ℓ	4 7/16 qts	3 11/16 qts
Oil pan		2.7 ℓ	2 7/8 qts	2 3/8 qts
Oil filter		0.54 ℓ	1 1/8 pints	1 pints
Transmission case:	Manual	1.2 ℓ	2 1/2 pints	2 1/8 pints
	Automatic	5.5 ℓ	5 7/8 quarts	4 7/8 quarts
Differential case		0.75 ℓ	1 5/8 pints	1 3/8 pints

JACKING UP AND TOWING THE CAR

JACK UP

Pantograph jack

Apply a jack to the indicated position where sill flange is embossed for identification.

Do not jack up other position.

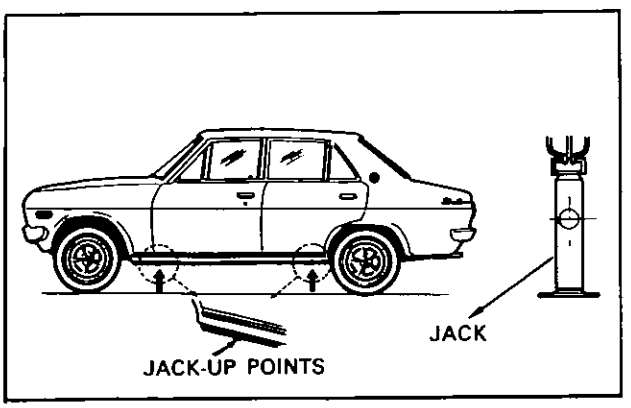


Fig. GI-12 Jacking up point

JACKING UP AND POINT TO BE SUPPORTED WITH STAND

Jacking up and point to be supported with stand

Note: a. When operation is carried out with the vehicle jacked up, be sure to support the vehicle with stand(s).

b. When applying stand(s) to the body, be sure to use a piece of cloth or wood between the body and stand(s).

Front side

When jacking up the vehicle, apply a garage jack beneath the front suspension member. When applying the jack, be sure to use a piece of cloth or wood between the jack and front suspension member. Be careful not to allow the jack coming into contact with the steering cross rod located behind the front suspension member. When supporting the vehicle with a stand, apply the stand to front portion of the front side member.

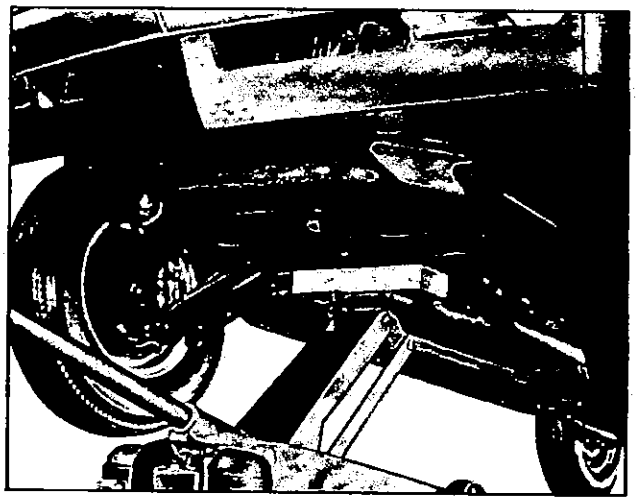


Fig. GI-13 Front jacking point

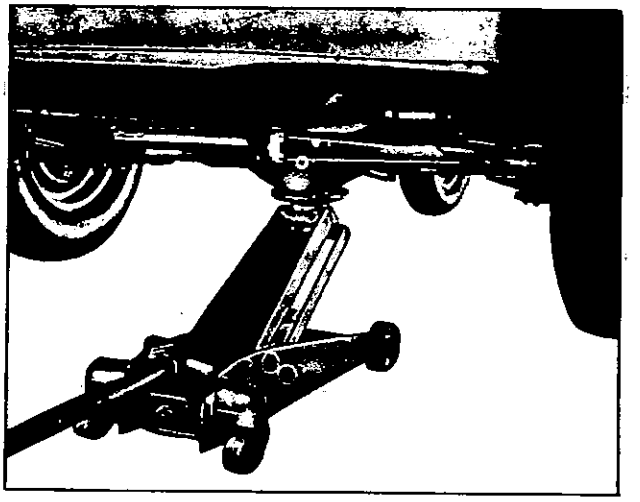


Fig. GI-15 Rear jacking point

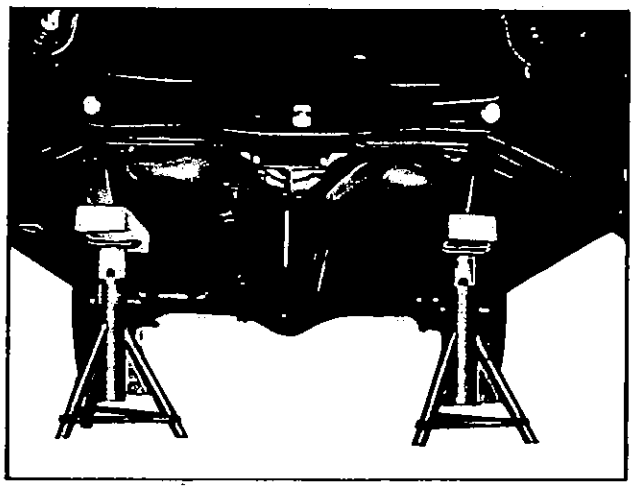


Fig. GI-14 Front supportable point

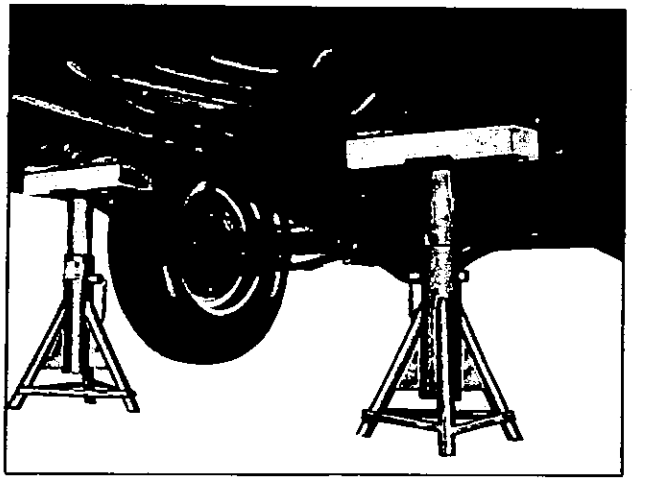


Fig. GI-16 Rear supportable point

Rear side

When jacking up the rear side of the vehicle, apply a garage jack beneath the rear axle housing.

When removing and installing the rear axle housing, spring, etc., support the rear cross member with stands. In other cases, support both ends of the rear axle housing with stands.

TOWING

Forward

When towing the vehicle forward, apply a rope to the notched portion of the tension rod bracket. In no event should a rope be applied to the transverse link.

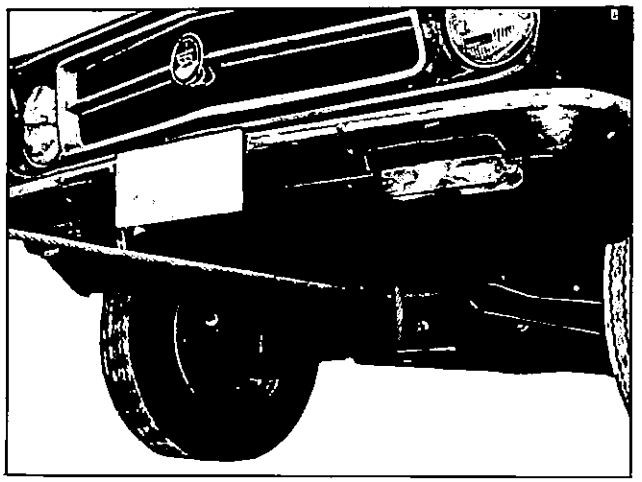


Fig. GI-17 Front towing point

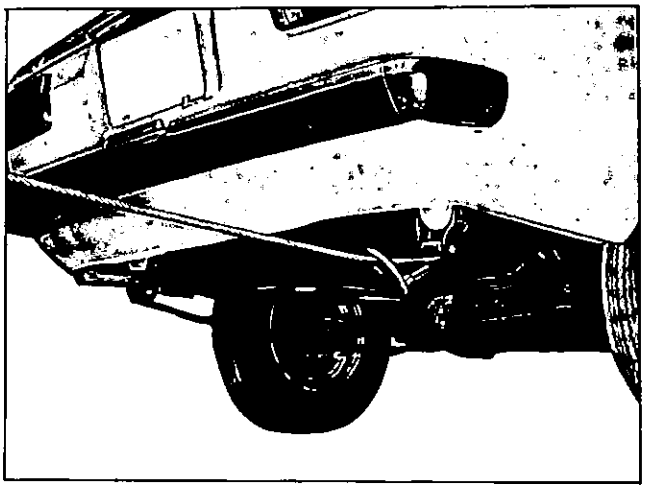


Fig. GI-18 Rear towing point

Rearward

When towing the vehicle rearward, apply a rope to the rear shackle of rear spring.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION ER

ENGINE REMOVAL & INSTALLATION

ER

ENGINE MOUNTING ..... ER- 1
ENGINE REMOVAL AND INSTALLATION ..... ER- 4

ENGINE MOUNTING

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Removal ER-2
Reinstallation ER-3

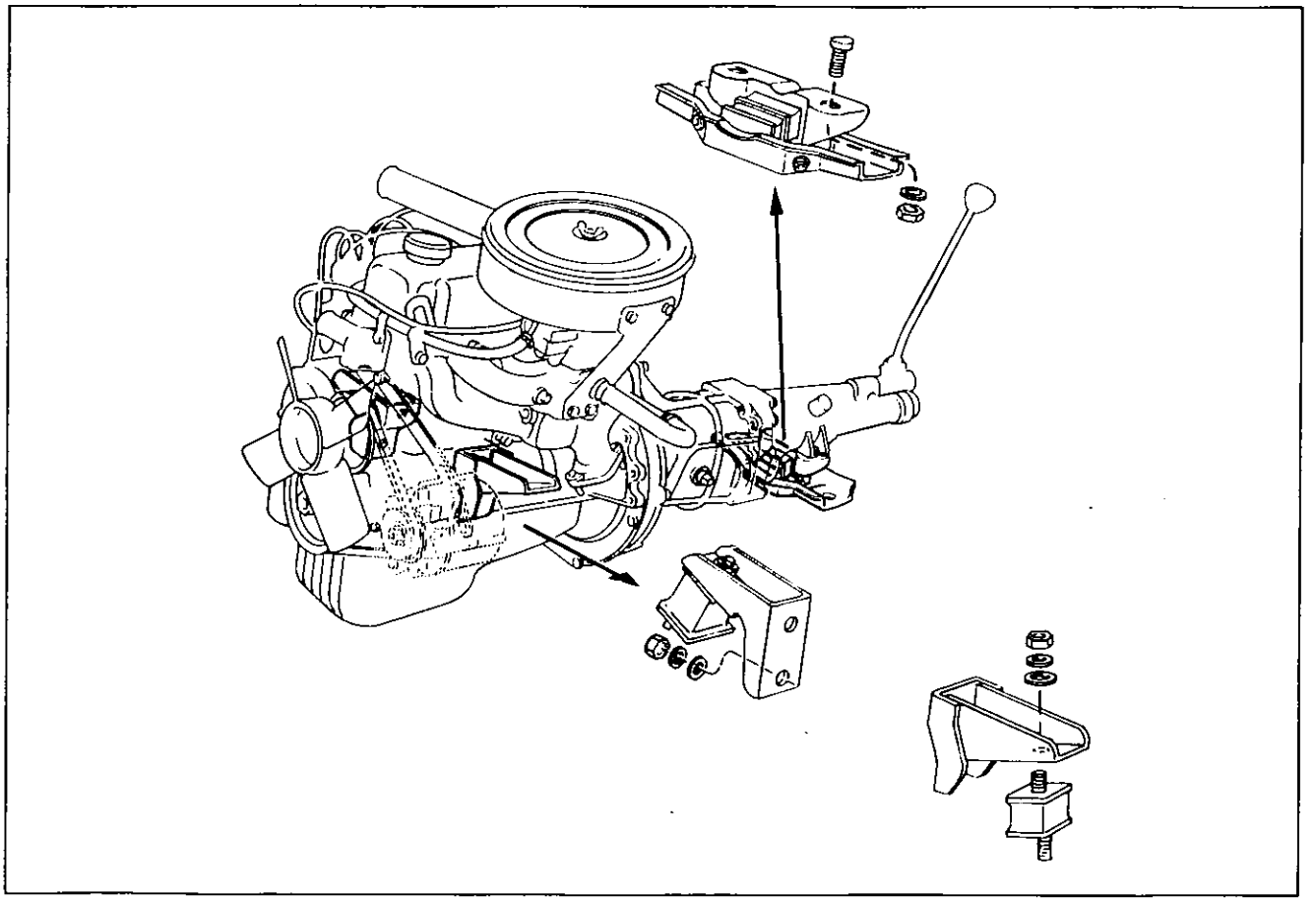

Fig. ER-1 Structural view of engine mounting

This engine adopts the same engine mounting method as A10. The strength of overall engine mounting construction, however, has been increased in response to the increased engine weight and engine output. Consequently, the parts used for engine mounting are not interchangeable with those for the A10 although their shapes and constructions are similar.

FRONT ENGINE MOUNTING

Removal

1. Suspend the engine with wire or chain.

2. Loosen the front engine mounting insulator upper nuts (both sides).

3. Make sure that the wire or chain used to suspend the engine is positioned properly so that no load is applied to the insulators, and remove the nuts completely.

4. Lift up the engine, and separate the insulators from the engine mounting brackets.

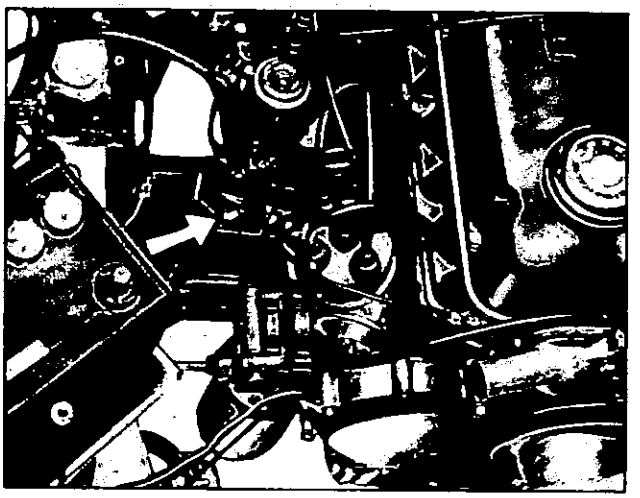

Fig. ER-2 Removing front mounting

Reinstallation

Reinstall the engine mounting insulators in reverse sequence of removal, noting the following matters:

1. Both the left and right engine mounting insulators are used commonly. However, when installing them, pay attention on their upper and lower directions. When they are installed correctly, the positioning pin is projected downward.

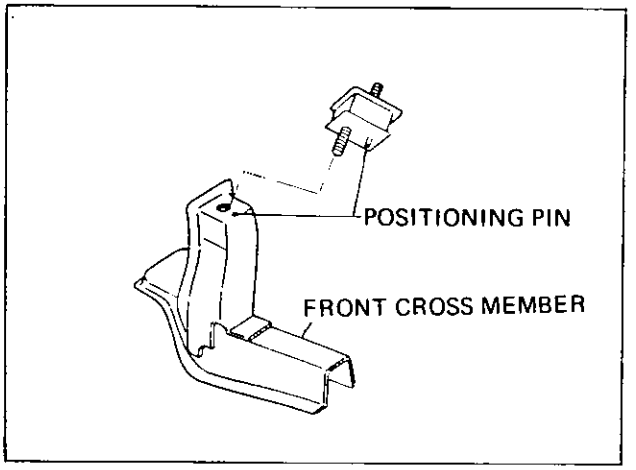

Fig. ER-3 Insulator installing position

2. Shape of the right side bracket differs from that of the left side bracket. Tighten the bolts and nuts correctly and securely.

	Tightening torque kg-m (ft-lb)
Bolt ①② Total four each for both sides	1.6 to 2.1 (11.6 to 15.2)
Nut ③④ Total four each for both sides	0.9 to 1.2 (6.5 to 8.7)

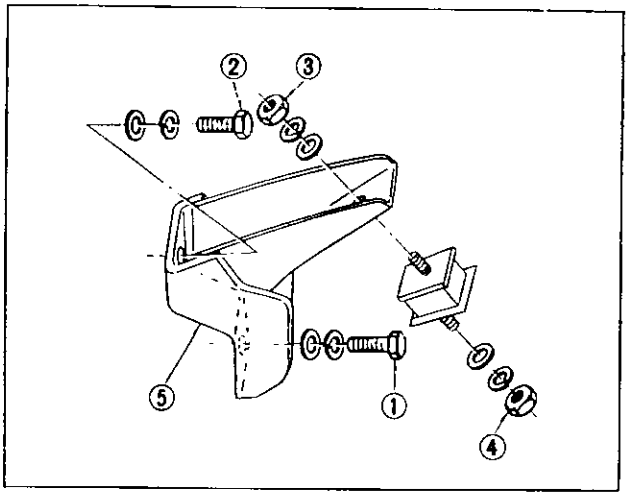

Fig. ER-4 Front mounting installation

REAR ENGINE MOUNTING

Removal

1. Support the transmission with a jack or other proper stand so that the engine does not drop down.

2. Remove the mount member installation bolts. Now, the engine can be separated from the body.

3. The mount member is provided with an opening for removing and installing operations. Remove the nuts and separate the insulator from the transmission.

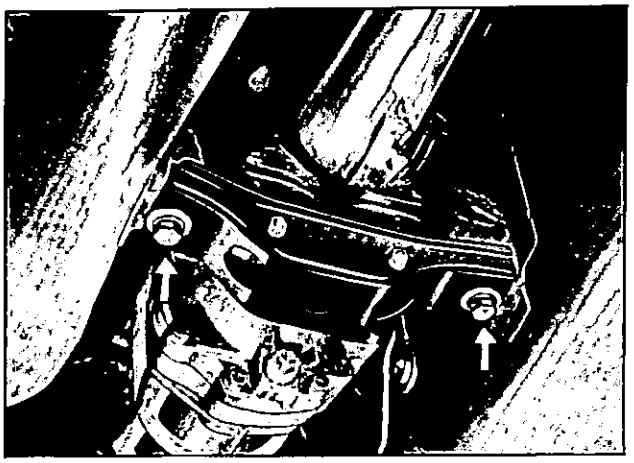

Fig. ER-5 Rear mounting

4. Remove four bolts, and separate the insulator from the engine mount member.

Reinstallation

Reinstall the rear engine mounting in reverse sequence of removal, noting the following matters:

1. Tighten the nuts and bolts correctly and securely.

	Tightening torque kg-m (ft-lb)
Nut ⑨ (mount member/insulator)	0.6 to 0.8 (4.3 to 5.8)
Nut ⑤⑥ (transmission/insulator)	1.9 to 2.6 (13.7 to 18.8)
Bolt ①② (mount member/body)	3.2 to 4.0 (23.1 to 28.9)

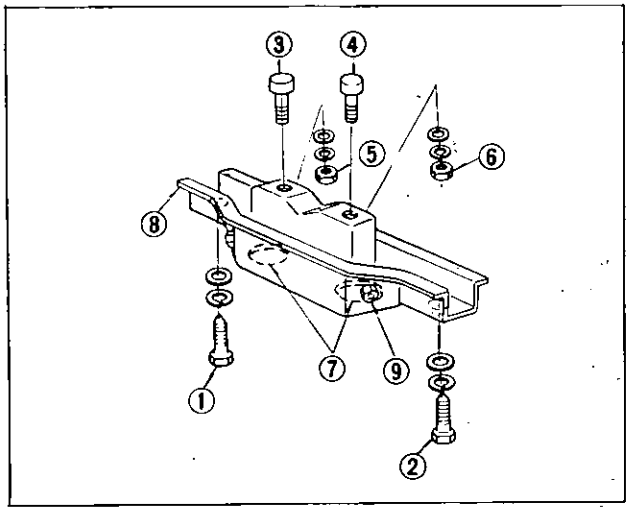

Fig. ER-6 Rear mounting installation

2. Carefully arrange the front and rear directions of the rear engine mounting when installing.

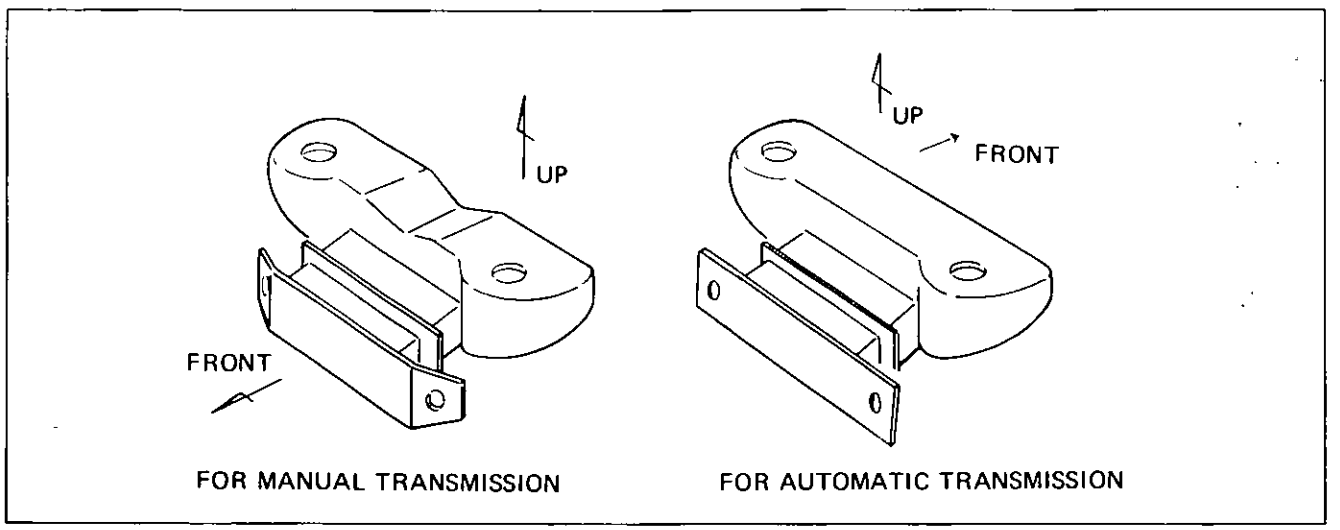

Fig. ER-7 Rear mounting specifications

ENGINE REMOVAL AND INSTALLATION

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PRECAUTIONS

1. Be sure to use fender cover so that the body is not damaged.

2. When lifting the engine or when jacking up the engine, pay attention for safety, and carry out operation correctly so that the parts are not damaged.

REMOVAL

1. Removing hood

Open the hood, remove four installation bolts, and remove the hood.

2. Disconnect the battery cable from the terminal.

3. Removing radiator

Drain water from the radiator, disconnect two radiator hoses, remove four radiator installation bolts, and remove the radiator.

Fig. ER-8 Removing radiator

4. Removing cables and hoses

Disconnect the following cables, hoses, and wires:

High voltage cable (between ignition coil and distributor)

Cable to the thermal transmitter

Cable to the oil pressure switch

Cable to the primary side of the distributor

Cable to the starting motor

Fuel hose

Cable to the alternator

Heater hose (for model with heater only)

Wires for accelerator and choke (The operation will be carried out more easily by removing the air cleaner.)

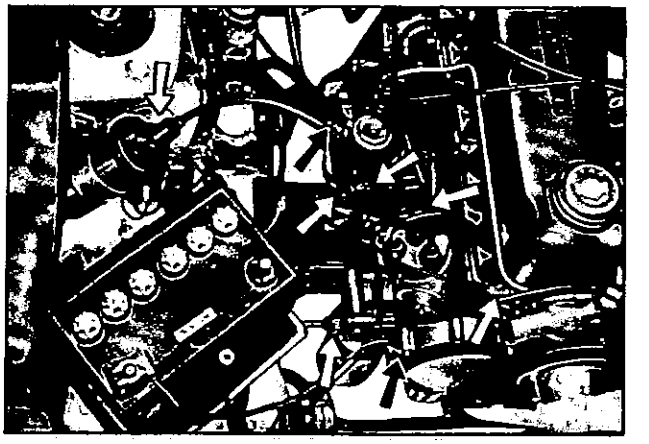

Fig. ER-9 Right side of engine compartment

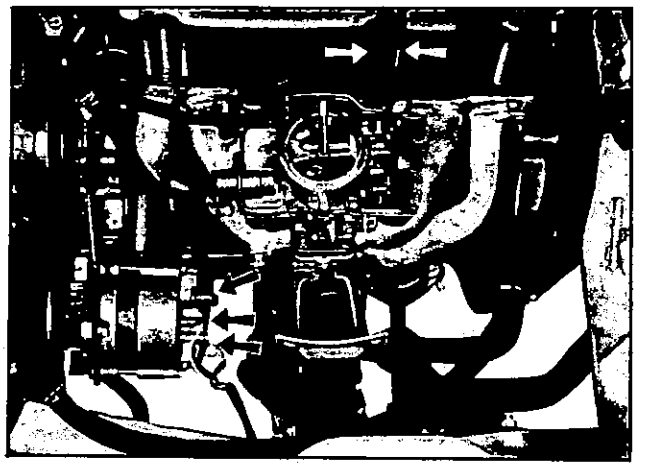

Fig. ER-10 Left side of engine compartment

5. Disconnecting clutch wire on right-hand drive model. On left-hand drive model, disconnect hydraulic line from the clutch slave cylinder.

Disconnect the clutch wire at the portion of the withdrawal lever. (See the section covering the clutch.)

6. Remove the exhaust front tube.

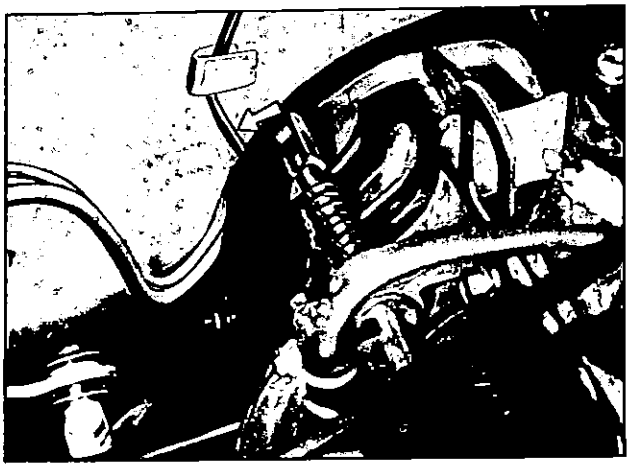

Fig. ER-11 Disconnecting clutch wire

7. Disconnect the cable to the back up lamp switch.

8. Disconnect the speedometer cable.

9. Remove the propeller shaft

Remove four bolts used in the differential carrier side, and withdraw the propeller shaft.

10. Remove the shift lever.

(Model with remote control shift lever)

Disconnect the remote control rod at the portion of transmission outer lever, and remove the remote control rod.

(Model with floor shift lever)

Remove the boot, withdraw the lock pin, and remove the lever. (The operation is carried out in the passenger compartment.)

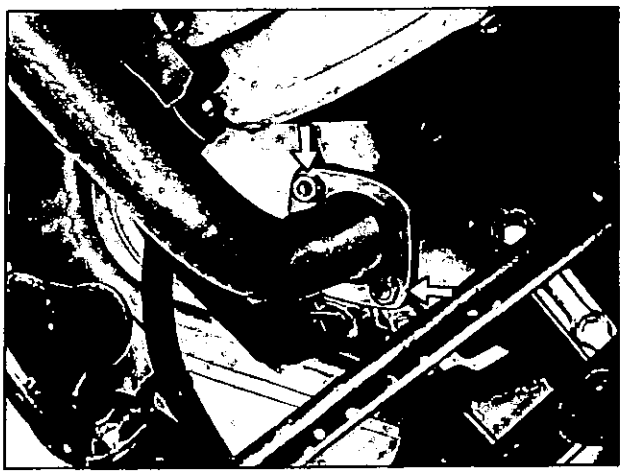

Fig. ER-12 Removing front tube

(Model with automatic transmission)

Remove pins from both ends of the cross shaft, and remove the shift rod.

11. Suspend the engine with wire.

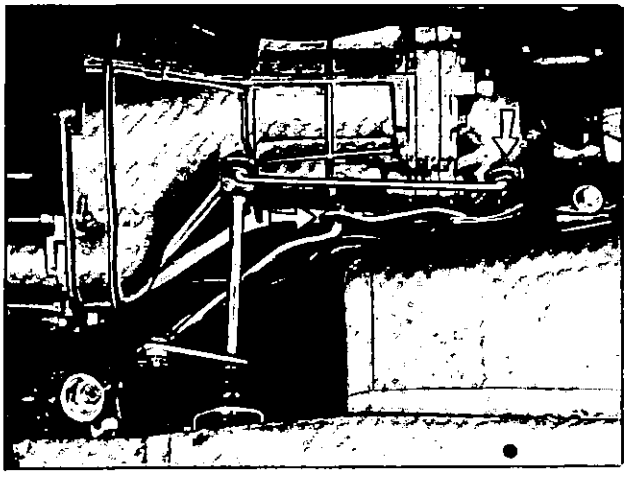

Fig. ER-13 Removing remote control rod

12. Remove the front engine mounting installation nuts.

13. Remove the rear engine mounting installation nuts.

14. When removing the engine mounting installation nuts, be sure to apply a jack beneath the transmission.

15. Lift up the engine toward the front.

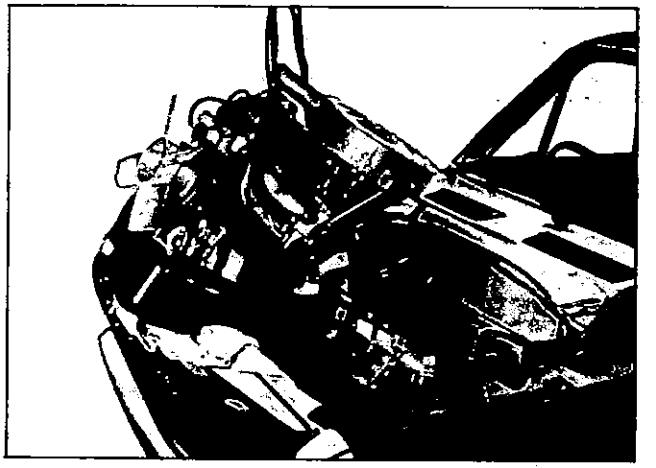

Fig. ER-14 Lifting up engine

INSTALLATION

Install the engine in reverse sequence of removal.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION CL

CLUTCH

CL

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CLUTCH

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DESCRIPTION

The clutch is a single dry disc diaphragm spring type clutch. The major components are clutch cover, pressure plate, diaphragm spring, and wire rings. The clutch disc is provided with riveted plates on both surfaces and coil springs arranged in a link. The coil springs absorb shock while engaging the clutch softening and smoothing clutch engagement.

Release bearing, sleeve, and withdrawal lever are used to control clutch engagement and disengagement.

Each part of the clutch assembly is secured with rivets. Therefore, when a trouble is uncorrectable, replace the clutch assembly with a new assembly.

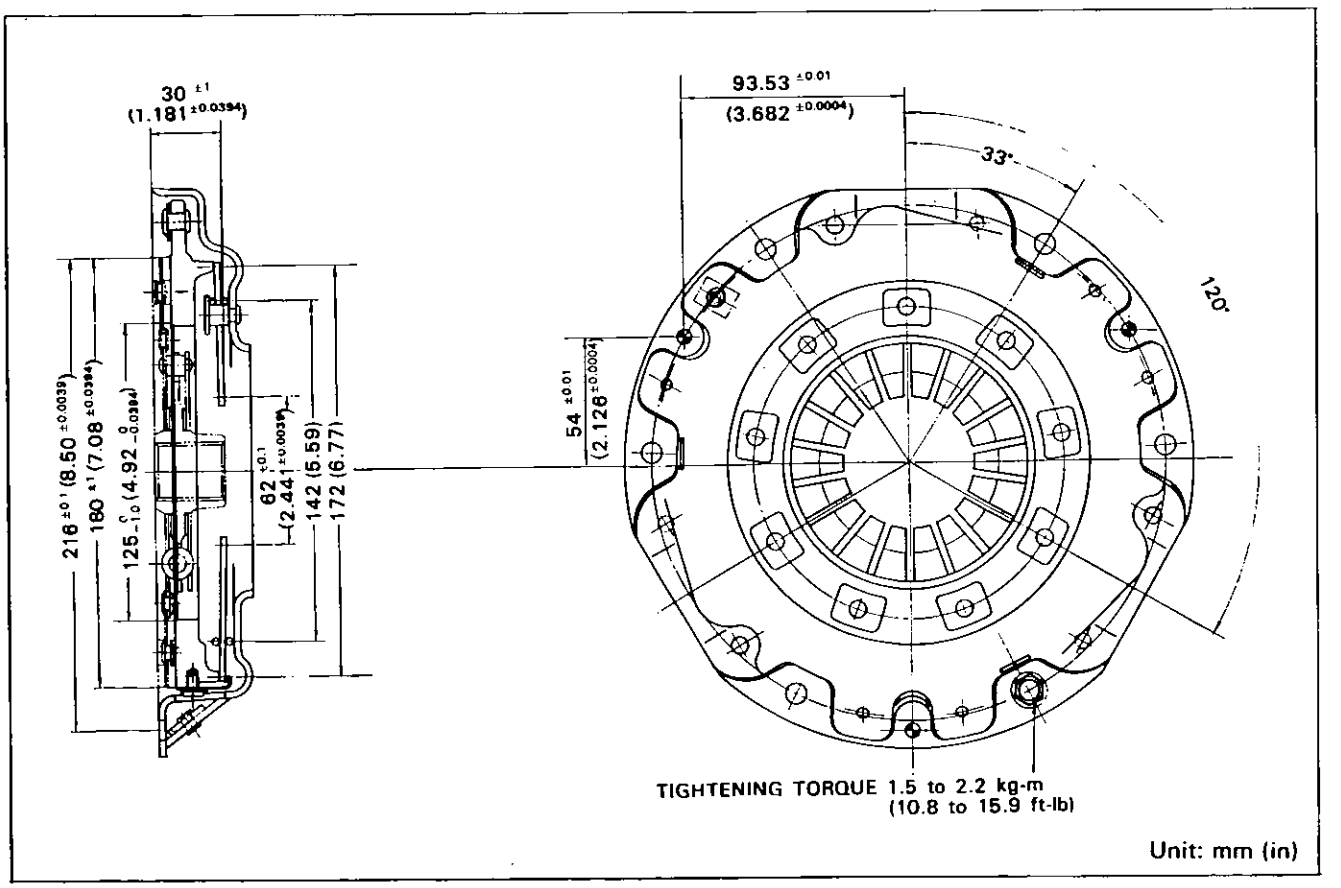
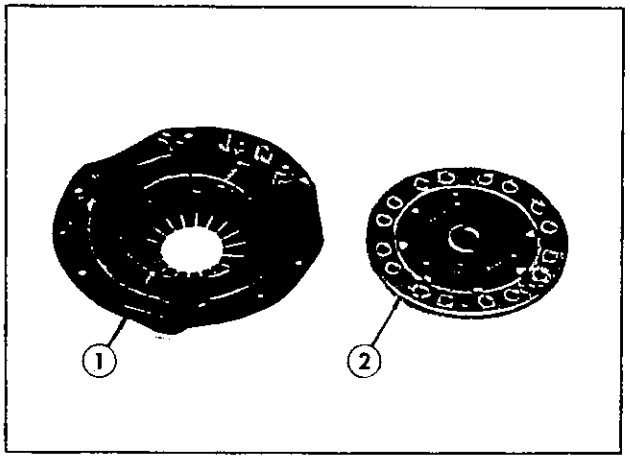


Fig. CL-1 Construction of clutch

REMOVAL

The clutch assembly is dismounted primarily in the same manner as the engine assembly. Thus, when dismounting the clutch assembly, refer to the Section TM (Transmission Removal) and other relative sections.



1	Clutch assembly	2	Clutch disc assembly

Fig. CL-2 Clutch assembly and disc assembly

DISASSEMBLY

1. When separating the clutch assembly from the flywheel, loosen and remove the installation bolts diagonally and gradually.

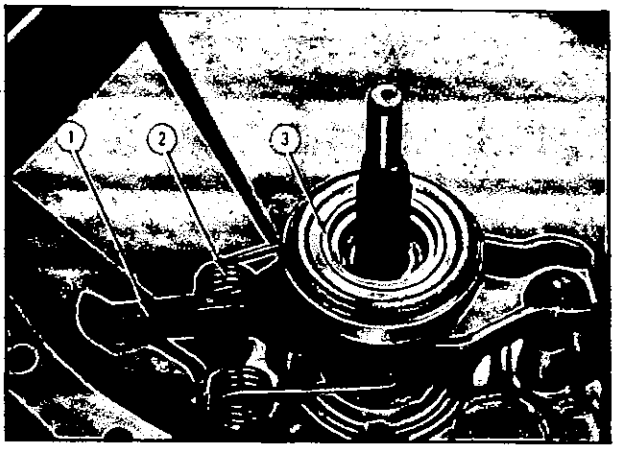
Note: When separating the clutch assembly from the flywheel, support the clutch cover sufficiently and loosen the installation bolts gradually and carefully because the diaphragm spring tension is always applied.

2. Removing release mechanism

(1) Remove the dust cover from the clutch housing.

(2) Remove the return spring from the bearing sleeve, and separate the withdrawal lever from the bearing sleeve.

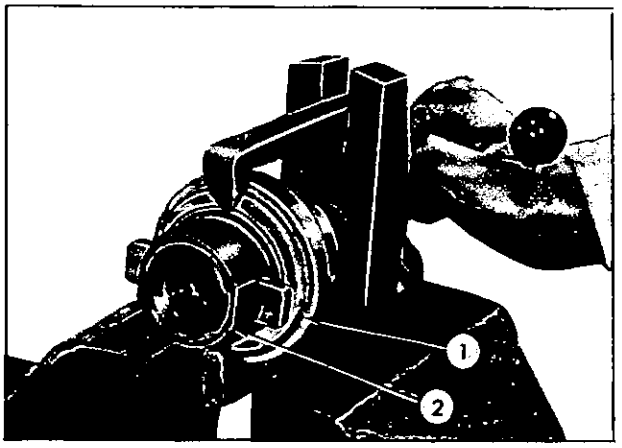
(3) Remove the release bearing and bearing sleeve from the front cover, and remove the withdrawal lever from the withdrawal lever ball pin.



1	Withdrawal lever	3	Release bearing
2	Return spring		

Fig. CL-3 Disassembling release mechanism

3. Withdraw the release bearing from the bearing sleeve by the use of a bearing puller.



1	Release bearing	2	Bearing sleeve

Fig. CL-4 Withdrawing release bearing

INSPECTION AND ADJUSTMENT

Thoroughly clean all disassembled parts, except for disc assembly and release bearing, and check them for wear, crack, and other defective conditions.

Clutch assembly

1. Check the clutch cover, diaphragm spring, pressure plate, etc. for excessive wear, crack and damage. When noise occurs on the clutch assembly, replace.

2. Measuring and adjusting height of diaphragm spring

(1) Line up distance piece (special tool ST20059001) on clutch assembly base plate (special tool ST20101000).

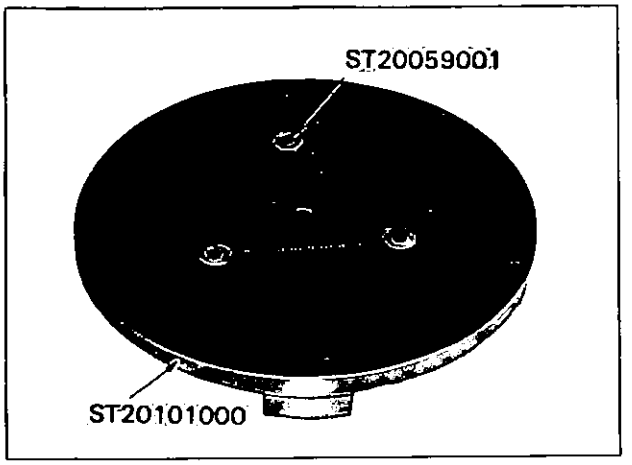


Fig. CL-5 Base plate and distance piece

(2) Place the clutch assembly on the distance piece, and set the clutch assembly on the base plate stationarily. (Under this condition, the distance piece is placed beneath the pressure plate.)

(3) Measure the diaphragm spring height from the upper surface of the base plate with vernier caliper depth gauge.

Height of diaphragm spring end: 29.0 to 31 mm (1.142 to 1.220 in) at diameter 62 mm (2.441 in).

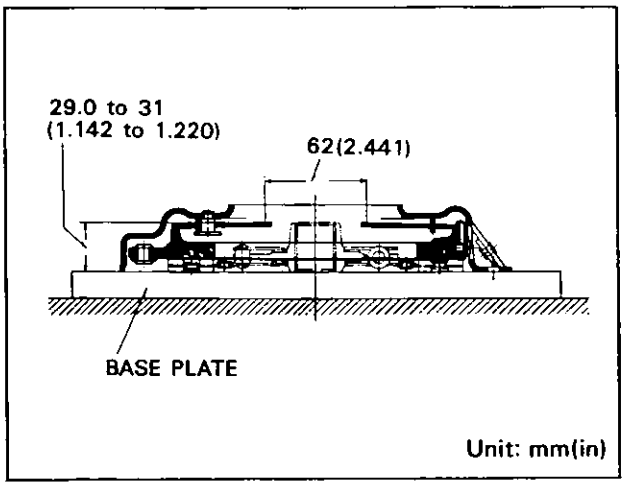


Fig. CL-6 Measuring height of diaphragm spring

(4) Adjust height of the diaphragm spring by the use of diaphragm spring adjusting wrench (special tool ST20105000), if required.

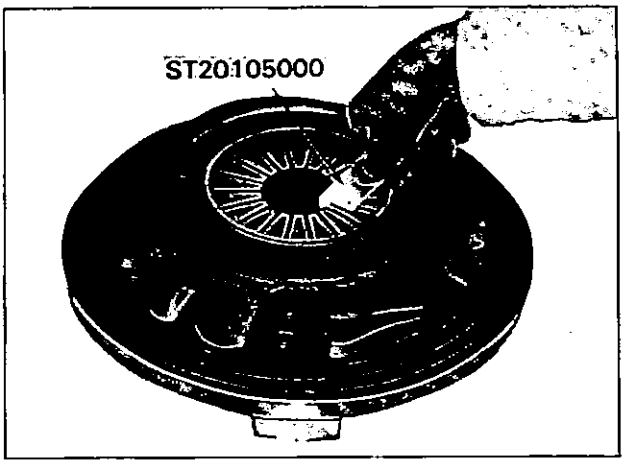


Fig. CL-7 Adjusting diaphragm spring height

Disc assembly

1. If the facing is soiled with grease or oil, clean off with gasoline tetrachloride and dress the facing with a wire brush. Replace the facing, if required.

2. Check the disc for deflection, and repair or replace if the deflection at the outer circumference of the facing exceeds the following value:

Upper limit of the deflection:
0.5 mm (0.0197 in) at
85 mm (3.3460 in) radius

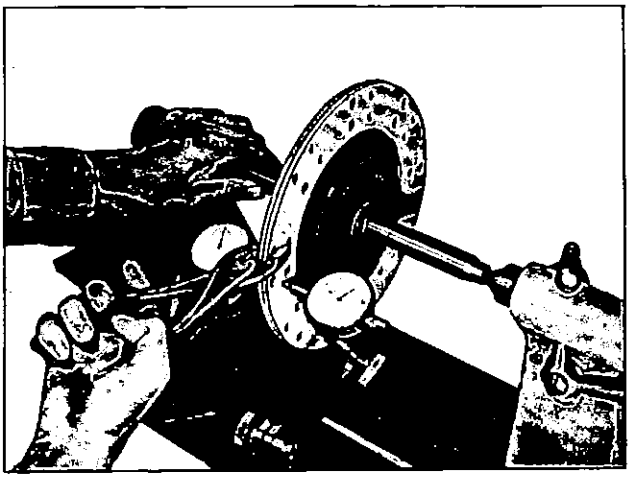


Fig. CL-8 Checking disc for deflection

3. Replace the disc assembly if the facing is worn to such an extent that the facing height above rivet is less than 0.3 mm (0.0118 in), the facing is worn unevenly, or rivets are loose.

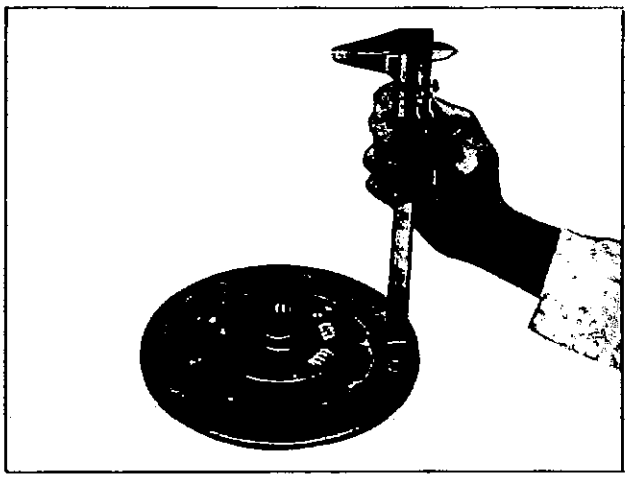


Fig. CL-9 Checking clutch facing for wear

Release bearing and sleeve

1. When withdrawal lever and bearing sleeve contact point is worn in step, replace the sleeve.

2. When grease leaks from the release bearing, or noise occurs on the release bearing, replace the release bearing.

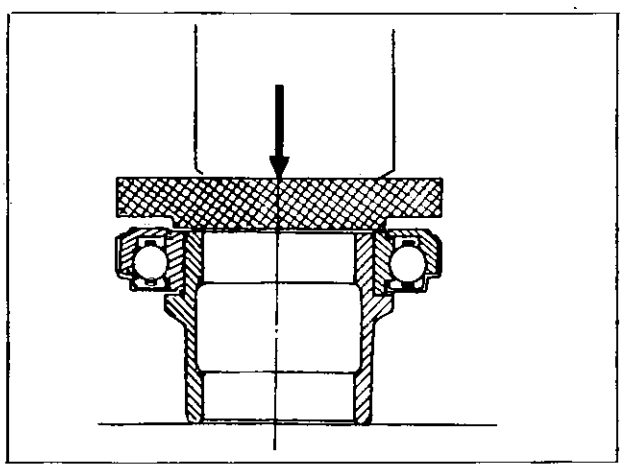


Fig. CL-10 Fitting release bearing

REASSEMBLY

Release mechanism

1. Tightly fit the release bearing to the place on the bearing sleeve as shown in Figure CL-10. When the bearing is installed completely, turn the bearing with a finger, and make sure that the bearing operates smoothly.

2. Apply multi-purpose grease to the following places:

- Bearing sleeve inside groove

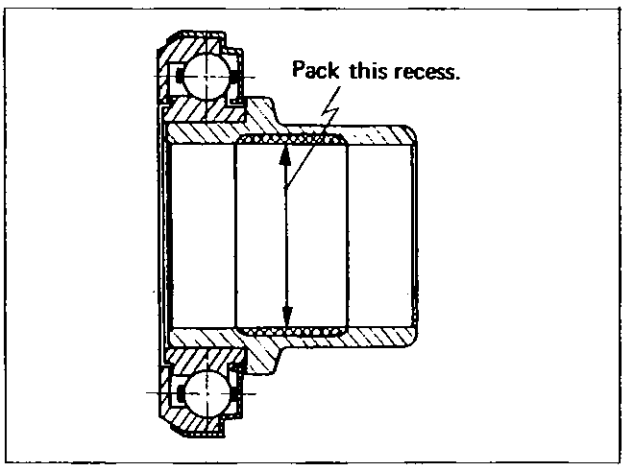
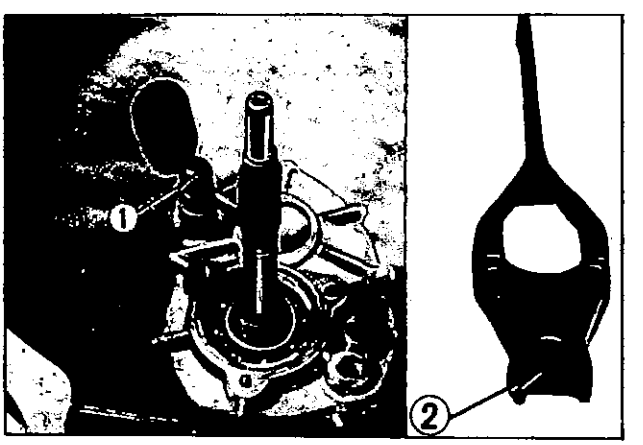


Fig. CL-11 Lubricated position on the bearing sleeve

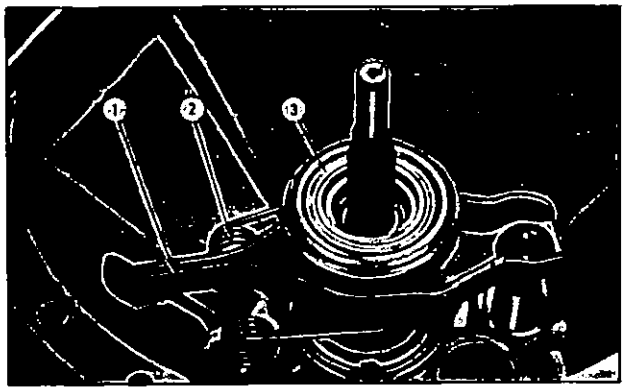
- Withdrawal lever and bearing sleeve contact point
- Withdrawal lever ball pin and withdrawal lever contact surface.



1	Withdrawal ball pin	2	Withdrawal lever

Fig. CL-12 Position on the withdrawal lever to which grease is applied.

3. When grease is applied to the necessary places, install the withdrawal lever, release bearing, and bearing sleeve on the clutch housing, connect them with return spring, and install the dust cover on the clutch housing.



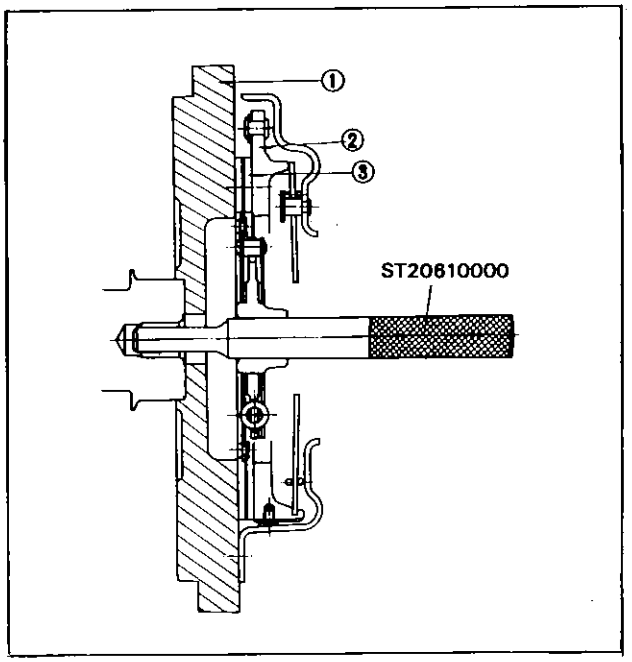
1	Withdrawal lever	3	Release bearing
2	Return spring		

Fig. CL-13 Installing release mechanism

REINSTALLATION

1. Clean the clutch pilot bushing, and fill it with multi-purpose grease.

2. Install the disc assembly and clutch assembly on the flywheel by the use of a special tool clutch aligning bar (ST20610000).



1	Flywheel	3	Clutch disc assembly
2	Clutch assembly		

Fig. CL-14 Installing disc and clutch assembly

CLUTCH CONTROL

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DESCRIPTION

The B110 series vehicles with left hand steering wheel and right hand steering wheel respectively adopt hydraulic type and mechanical type clutch control systems.

The hydraulic type clutch control system consists of pendent clutch pedal, master cylinder, operating cylinder and withdrawal lever. The withdrawal lever is of an inner

fulcrum type.

The mechanical type clutch control system consists of pendent clutch pedal, clutch control cable, and withdrawal lever. The withdrawal lever is of an outer fulcrum type which provides a great lever ratio, and thus, force required in depressing clutch pedal is reduced.

CLUTCH PEDAL (Hydraulic clutch)

Removal

1. Remove the return spring.

2. Loosen the lock nut of the master cylinder push rod, and disconnect the push rod end.

3. Remove the lock nut and washer of the pedal shaft and remove the pedal lever.

Inspection

Thoroughly clean all disassembled parts (indicated below) and carefully check them for wear, damage and other abnormal conditions. Repair or replace them with new ones, if required.

1. Pedal head rubber
2. Return spring
3. Pedal lever bush
4. Fulcrum pedal pin, etc.

Reinstallation

Reinstall the clutch pedal in reverse sequence of removal.

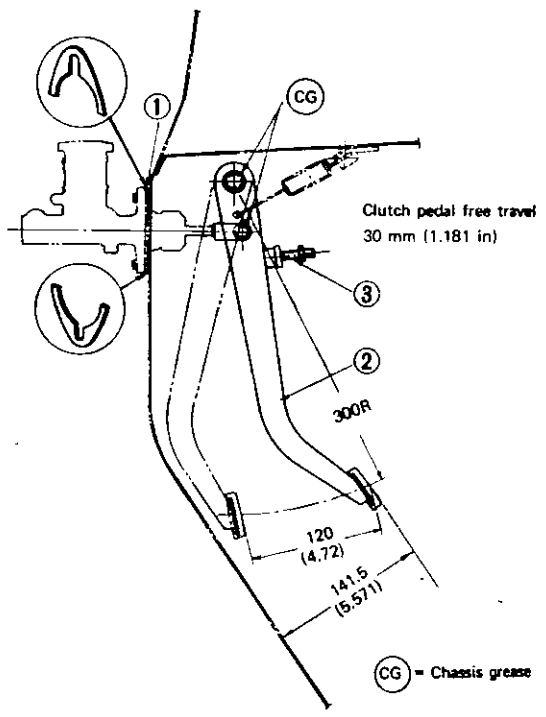
Adjustment

1. Adjust pedal pad height to 143.5 mm (5.65 in) without stopper. The adjustment is made by selecting and applying shim(s) having adequate thickness.

Be sure to use shims having same thickness for both upper and lower.

2. Next, adjust the pedal stopper properly so that the pedal pad height is 141.5 mm (5.57 in), and secure the position with lock nut.

Note: Make sure that chassis grease has been applied to the (CG) marked portions (two places). Grease if required.



Adjusting shim

Part number	Thickness mm (in)
30611 27260	1.6 (0.0630)
30612 27260	0.8 (0.0315)
30613 27260	0.5 (0.0197)

1	Adjusting shim
2	Pedal lever
3	Pedal stopper

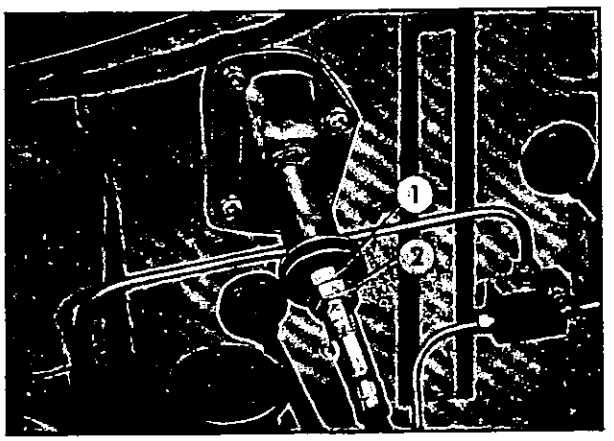
Unit: mm(in)

Fig. CL-15 Pedal height adjustment

CLUTCH PEDAL AND CLUTCH CONTROL CABLE
(Mechanical clutch)

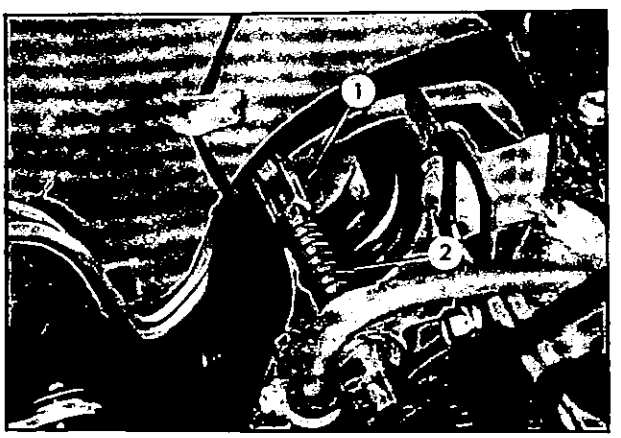
Removal

1. Loosen the control cable adjusting nut, and disconnect the control cable from the withdrawal lever.



1	Adjusting nut	2	Lock nut

Fig. CL-16 Clutch control cable

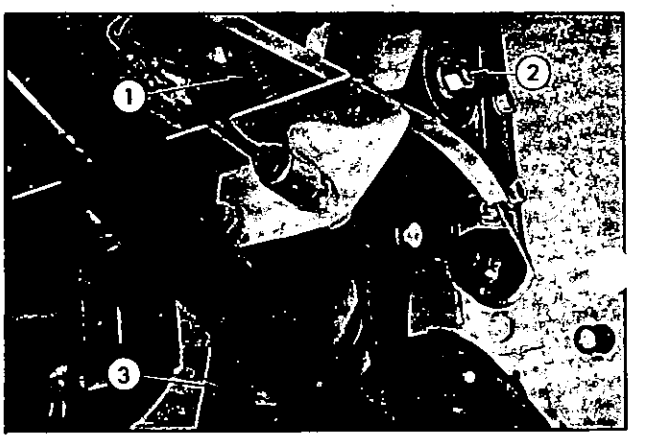


1	Withdrawal lever	2	Clutch control cable

Fig. CL-17 Disconnecting clutch control cable

2. Unhook the clutch pedal return spring.

3. Remove the clutch/brake pedal installation bolts, and remove the clutch pedal and control cable.



1	Return spring	3	Clutch pedal
2	Fulcrum pedal pin		

Fig. CL-18 Removing pedal installation bolt

Inspection

Thoroughly clean all disassembled parts (indicated below) and carefully check them for wear, damage and other abnormal conditions. Repair or replace as required.

1. Control cable
2. Pedal head rubber
3. Pedal lever bush
4. Fulcrum pedal pin
5. Others

Reinstallation

Reinstall the clutch pedal and clutch control cable in reverse sequence of removal.

Adjustment

1. Adjust the pedal stopper so that pedal height is in range from 139.5 mm (5.49 in) to 143.5 mm (5.65 in), and secure the position with lock nut completely.

2. Next, adjust the control cable adjust nut so that clutch pedal play is in range from 11 to 15 mm (0.433 to 0.591 in) at the center of the clutch pedal pad, and make sure that play at "P" point of the withdrawal lever is in range from 3.0 to 4.0 mm (0.1181 to 0.1575 in). Secure the alignment with lock nut completely.

Note: Connect the control cable correctly so that ⊛ mark cap is faced upward as shown in the following figure. Make sure that chassis grease has been applied to the (CG) marked positions (three places). Apply grease if required.

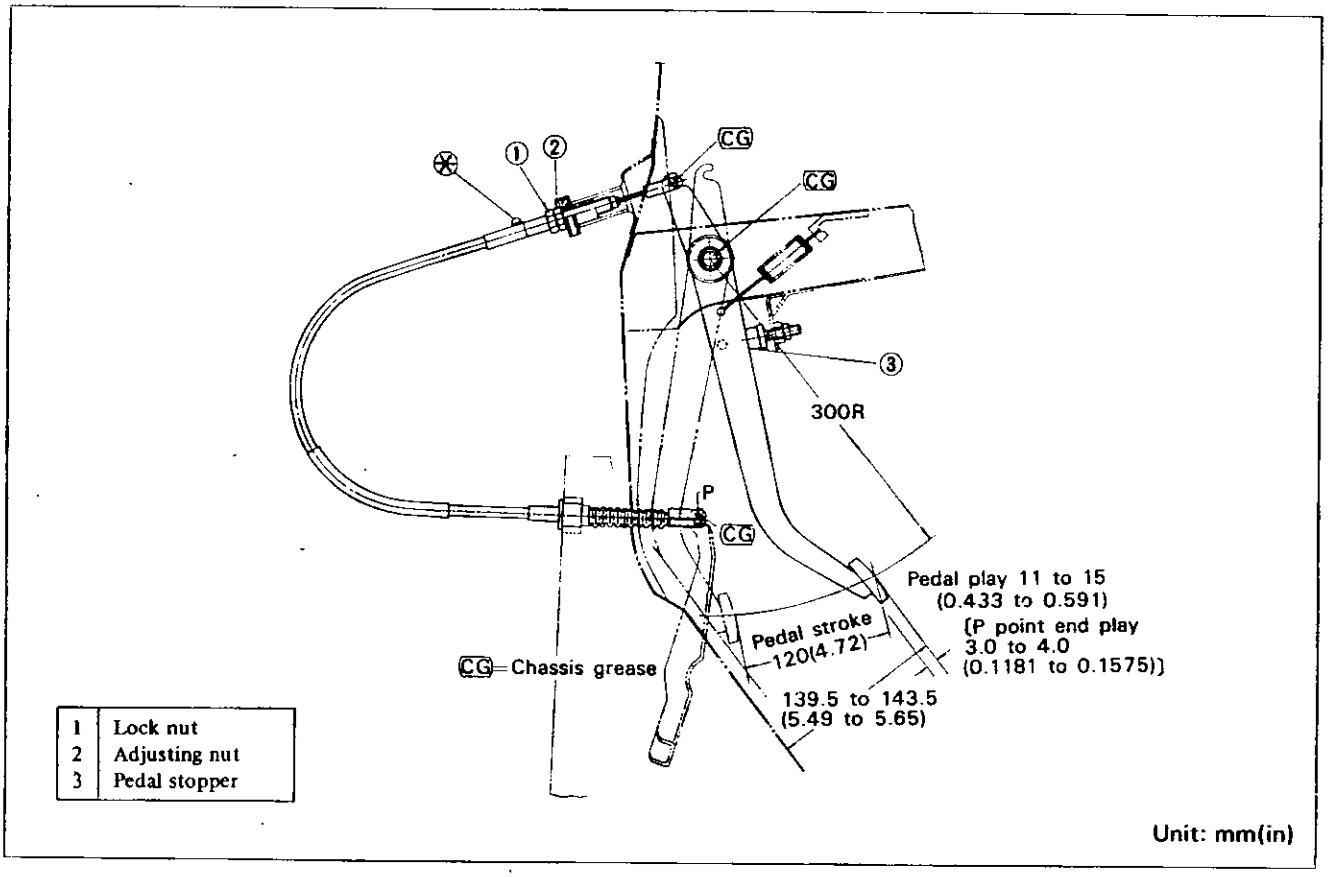


Fig. CL-19 Pedal height adjustment

3. When the clutch pedal is heavy, remove grease filler cap from front portion of the adjust nut, and grease. Be sure to use grease containing molybdenum disulfide.

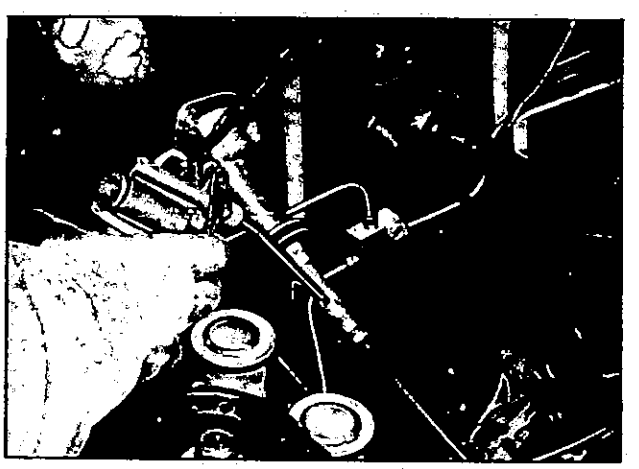


Fig. CL-20 Greasing to the nipple of clutch control cable

CLUTCH MASTER CYLINDER (Hydraulic clutch)

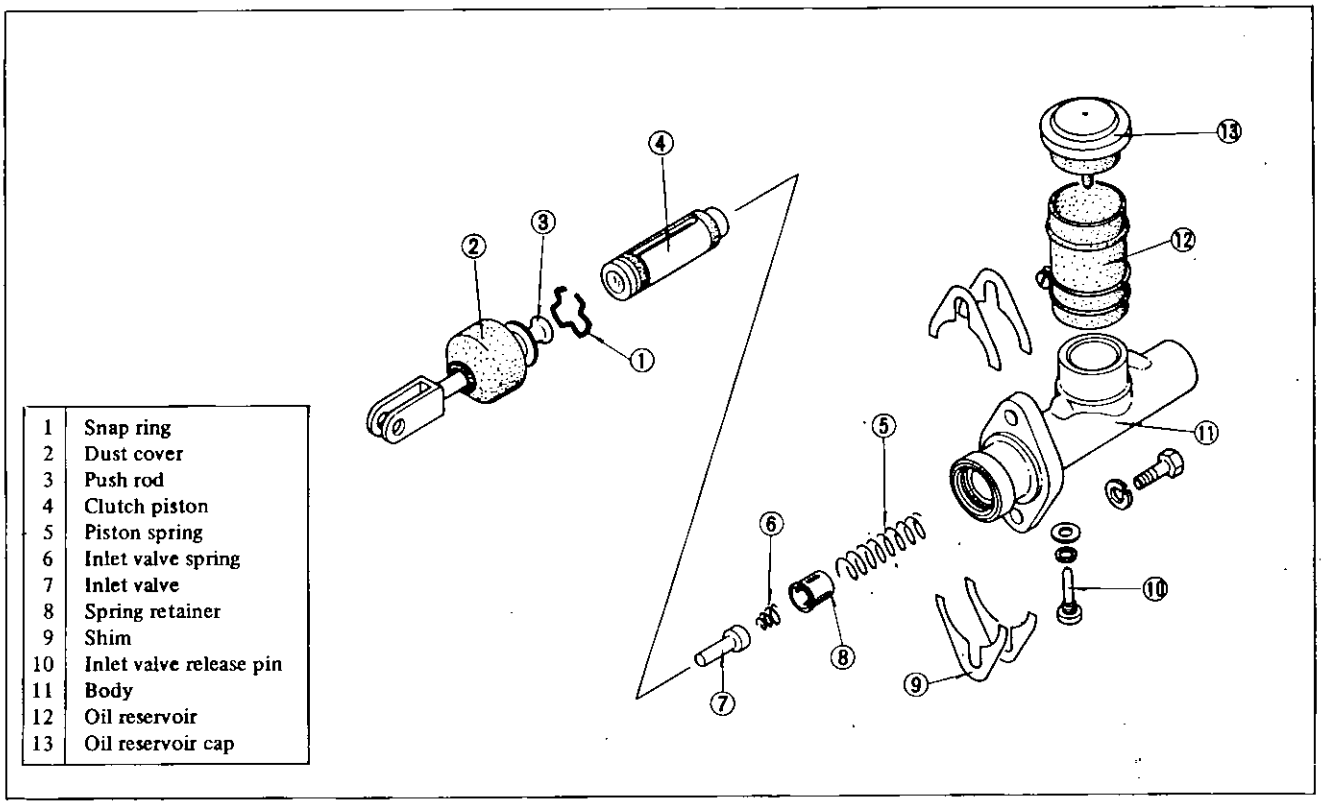


Fig. CL-21 Clutch master cylinder

Removal

1. Disconnect the push rod from the clevis.

2. Disconnect the clutch line from the master cylinder, and drain fluid.

3. Remove the securing bolts and remove the master cylinder assembly from the vehicle.

Disassembly

1. Remove the filler cap and drain fluid.

2. Pull back the dust cover and remove the snap ring. The stopper, push rod, piston assembly, primary cup and return spring assembly can be removed.

Inspection

Thoroughly clean all parts with brake fluid before inspection.

1. Check the cylinder and piston for uneven wear or damage. Replace if required.

2. When clearance between the cylinder and piston is more than 0.15 mm (0.0059 in), replace the cylinder.

3. Replace the piston cup, primarily, whenever the master cylinder is disassembled. It must also be replaced when wear or deformation due to fatigue or damage is found.

4. Check the dust cover, oil reservoir, filler cap, and clutch line for damage or deformation. If abnormal condition is found, replace with new one.

Reassembly

Reassemble the master cylinder assembly in reverse sequence of disassembly noting the following matters.

1. The piston cup should be soaked in brake fluid before reassembly. Install the piston cup carefully so that it is correctly faced.

2. Apply brake fluid sufficiently to the cylinder and piston, and assemble them.

Reinstallation

Reinstall the master cylinder assembly in reverse sequence of removal, and adjust as follows.

1. Adjust the pedal height by changing the push rod length.

2. Bleed air out of the hydraulic system.

OPERATING CYLINDER (Hydraulic clutch)

Removal

1. Remove the return spring.

2. Disconnect the clutch line from the operating cylinder.

3. Disconnect the push rod from the withdrawal lever.

4. Release two bolts used to mount the operating cylinder to the clutch housing.

Disassembly

1. Remove the dust cover.

2. Remove the snap ring. All other parts are can be disassembled.

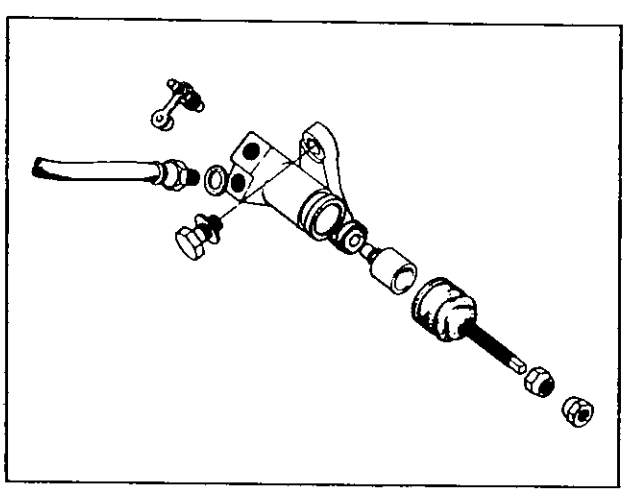


Fig. CL-22 Operating cylinder disassembled

Inspection

Check all parts (especially the piston cup), and replace if worn or damaged.

Reassembly

Reassemble the operating cylinder in reverse sequence of disassembly noting the following matters.

1. Soak the piston cup in fluid before reassembly. Install the piston cup carefully so that it is faced correctly.

2. Apply brake fluid sufficiently to the cylinder and piston, and assemble them.

Reinstallation

Reinstall the operating cylinder in reverse sequence of removal.

1. Bleed air out of the hydraulic system.

2. Adjust the push rod so that the withdrawal lever end play is 1.0 to 2.0 mm (0.0394 to 0.0787 in) in accordance with the following instructions.

ADJUSTING WITHDRAWAL LEVER

Correct adjustment of the clutch withdrawal lever is essential. Insufficient free travel between the release bearing and the diaphragm spring fingers causes the clutch to slip, while excessive free travel affects full disengagement of the clutch.

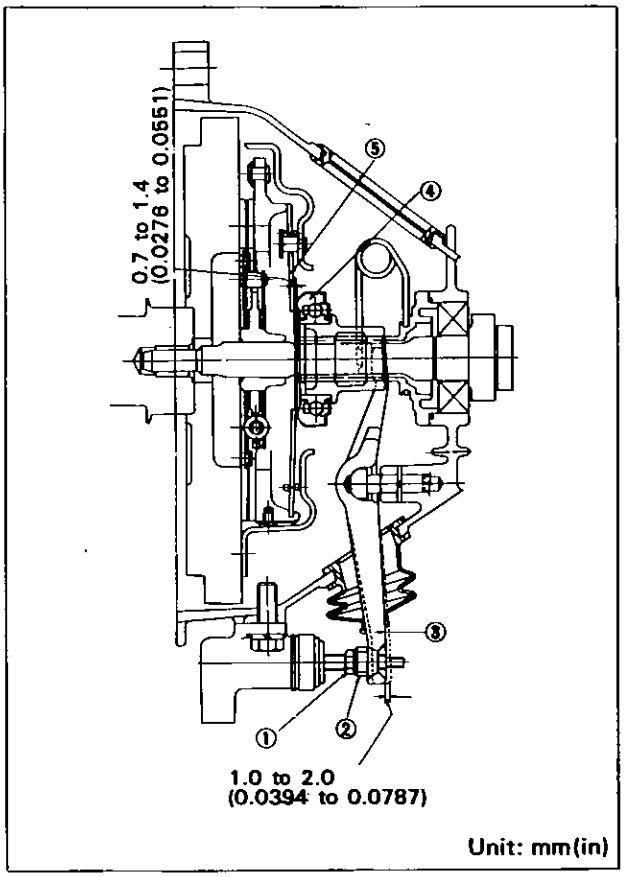
The clearance between the release bearing and the diaphragm spring fingers can be adjusted at the withdrawal lever end as follows.

(Hydraulic clutch)

(1) Loosen the lock nut, tighten the adjusting nut and eliminate clearance between the top of the withdrawal lever and release bearing.

(2) Return the adjusting nut from that position 1 1/4 turns and set the adjusting nut stationarily with the lock nut.

When the adjusting nut is returned 1 1/4 turns, the withdrawal lever end is returned to 1.0 to 2.0 mm (0.0394 to 0.0787 in), and clearance between the release bearing and diaphragm spring fingers becomes 0.7 to 1.4 mm (0.0276 to 0.0551 in).

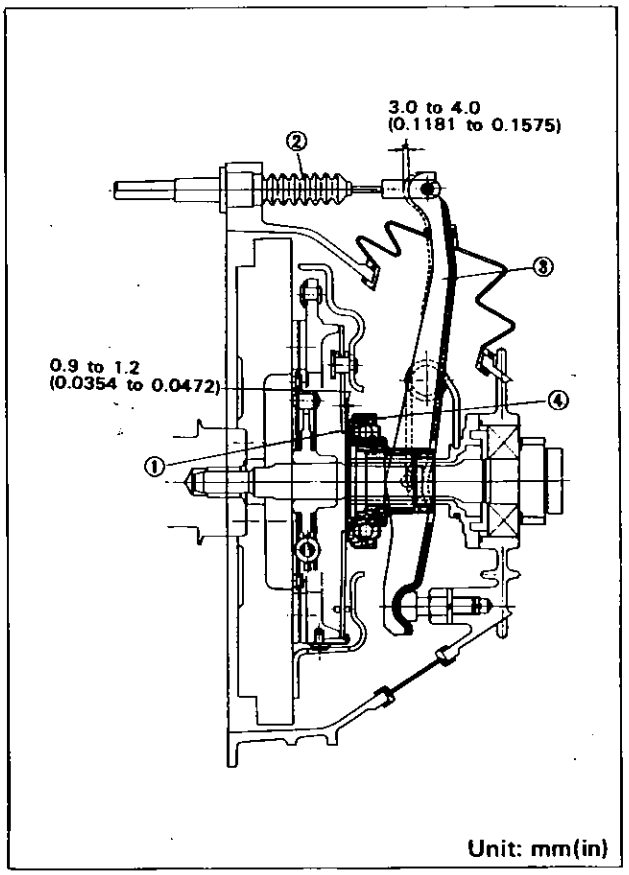


1	Lock nut	4	Release bearing
2	Adjusting nut	5	Diaphragm spring
3	Withdrawal lever		

Fig. CL-23 Adjusting withdrawal lever play

(Mechanical clutch)

Adjust the clutch control cable adjust nut so that play at the withdrawal lever end is 3.0 to 4.0 mm (0.1181 to 0.1575 in), and securely tighten the lock nut. Clearance between the release bearing and diaphragm spring fingers will become 0.9 to 1.2 mm (0.0354 to 0.0472 in).



1	Diaphragm spring	3	Withdrawal lever
2	Clutch control cable	4	Release bearing

Fig. CL-24 Adjusting withdrawal lever play

BLEEDING CLUTCH SYSTEM
(Hydraulic clutch)

1. Remove the bleed screw dust cap from the operating cylinder.

2. Open the bleed screw approximately three-quarters of a turn. Attach a tube immersing the open end into a clean container which contains a small amount of brake fluid.

3. Fill the master cylinder reservoir with the recommended fluid.

4. Depress the clutch pedal quickly while keeping it down retighten the bleed screw, and allow it to return slowly. Repeat this pumping action until the fluid entering the container is free from air bubbles.

5. Screw up the bleed screw on a down stroke of the pedal, remove the bleed tube and replace the dust cap.

SERVICE DATA AND SPECIFICATIONS

	Hydraulic clutch	Mechanical clutch
Clutch release lever		
Release bearing-to-diaphragm spring (withdrawal lever) clearance	0.7 to 1.4 mm (0.0276 to 0.0551 in)	0.9 to 1.2 mm (0.0354 to 0.0472 in)
Diaphragm spring to-flywheel height	29 to 31 mm (1.142 to 1.220 in)	←
Clutch disc		
Facing size Outer dia. x inside dia. x thickness	180 x 125 x 7.8 mm (7.09 x 4.92 x 0.3071 in)	←
Total friction area	264 cm² (40.92 sq in)	←
Thickness of disc assembly		
Free	7.6 to 8.0 mm (0.2992 to 0.3150 in)	←
Compressed	6.7 to 7.0 mm (0.2638 to 0.2756 in)	←
Number of torsion spring	6	←
Allowable minimum depth of rivet head from facing surface	0.3 mm (0.0118 in)	←
Allowable facing run-out	0.5 mm (0.0197 in) at radius 85 mm (3.346 in)	←
Allowable free play of spline	0.4 mm (0.0157 in)	←
Clutch pedal		
Pedal height when not depressed	141.5 mm (5.57 in)	139.5 to 143.5 mm (5.49 to 5.65 in)
Free travel of pedal head	30 mm (1.181 in)	←
Pressing strength at full stroke	10.8 kg (23.8 lb)	8.3 kg (18.3 lb)
Master cylinder – clutch		
Master cylinder diameter	15.87 mm (5/8 in)	—
Allowable maximum clearance between cylinder and piston	0.15 mm (0.0059 in)	—

Operating cylinder – clutch

Operating cylinder diameter	19.05 mm (0.750 in)

Tightening torque

Clutch assembly securing bolt	1.5 to 2.2 kg-m (10.8 to 15.9 ft-lb)

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Corrective action
Noises audible on pedal depression	Excessively worn, damaged or poorly lubricated release bearing	Replace the bearing which, being cased, cannot be greased inside.
	Seized release bearing and diaphragm spring fingers	Replace the release bearing. Clean diaphragm spring fingers with metal brush and smooth out bearing contact faces with felt polishers.
	Insufficient pedal free travel	Readjust pedal free travel correctly.
	Weakened, unhooked or broken clutch pedal return and control springs	Set springs in position or replace them, if weakened or snapped.
	Weakened clutch withdrawal lever return spring broken or unhooked	Replace the spring or hook it up, as required.
	Excessive play between clutch disc hub and drive shaft spline	Replace the clutch disc and ensure that clearance between hub of new clutch and drive shaft is within 0.50 mm (0.0197 in) endwise and 0.20 mm (0.0079 in) crosswise. When clearances exceed above limits, replace the drive shaft also.
Noises audible on pedal release	Misalignment of clutch disc to flywheel causes slight movement of disc hub in respect of facings. This noise is especially audible with engine idling or at low speed.	Set level of clutch disc with clutch disc in place on drive shaft, set it under slight rotation and check for no run-out, using a scriber.
	Broken or weakened clutch disc cushion springs	Replace the clutch disc.
	Insufficient pedal free travel	Set pedal free travel correctly.
	Weakened, unhooked or broken clutch control and pedal return prings	Check the springs for correct position, and replace them, if necessary.

	Weakened, broken or unhooked clutch withdrawal lever return spring	Replace the spring or hook it up, as required.
	Distorted or worn drive shaft	Replace the drive shaft and clutch disc if necessary.
	Excessive play of release bearing on slip sleeve	Replace the worn parts.
The clutch drags.	Insufficient push rod length	Adjust the push rod length correctly.
	Excessive pedal free travel	Adjust free travel correctly
	Warped clutch disc	Set level of clutch disc, if possible. Maximum plate run-out; 0.25 mm (0.0098 in)
	Roughened linings	Repolish linings with a metal brush or replace them, if necessary.
	Improperly fitted, loose or broken lining	Replace linings. Lining rivets should be clenched with no protrusion, to avoid damaging pressure plate and flywheel.
	Incorrect release bearing-to-diaphragm spring finger clearance	Adjust correctly.
	Clutch disc hub forcing on drive shaft	Locate cause of trouble and remove it, if possible, Otherwise replace the clutch disc.
	Damaged drive shaft splines prevent the clutch disc from sliding	Replace the drive shaft; also the clutch disc, if required.
	Oil or grease on linings	Locate the cause of oil or grease leakage and correct it as required. Clean or replace linings.
	Warped or damaged pressure plate or clutch cover	Replace defective parts.
	Air pockets in the hydraulic system (not bled correctly)	Bleed out completely.
	Dirt or foreign matter on sealing faces of master cylinder piston cup	Clean, replace piston cup, if damaged, and bleed the system.
	Air pockets in master cylinder due to loose piston	Replace piston cup and bleed the system.
	Fluid leakage from cylinder	Replace piston cup, if damaged; bleed the system.
	Low fluid level in reservoir	Top up with brake fluid and bleed the system, if necessary.

	Clogged vent hole in reservoir cap promotes vacuum in master cylinder allowing air to infiltrate past the seal	Clean reservoir cap, unclog the vent hole and bleed the system.
Abnormal lining wear	Insufficient pedal free travel	Adjust clutch pedal free travel correctly.
	Driver steps unnecessarily on pedal; this causes lining wear and damage to release bearing	Advise driver to discontinue wrong practice and step on clutch pedal only when necessary.
	Weakened or snapped pressure springs	Check pressure springs for tension as specified, and replace springs, if they are unserviceable.
	Incorrectly installed linings	Replace linings with new ones and install them correctly. Check clutch disc for center alignment.
The clutch grabs.	Oil or grease on flywheel, pressure plate and linings	Remove cause of leakage, clean flywheel and pressure plate thoroughly, replace linings.
	Loose disc linings due to poor rivet tightness	If linings are not worn, replace defective rivets. Otherwise, replace linings and clench rivets securely.
	Clutch disc hub does not slide freely on drive shaft spline	Remove any foreign matter or dirt deposits from shaft splines. When trouble is still present, replace damaged parts.
	Warped or cracked pressure plate	Replace pressure plate.
	Misalignment	Locate the defective point, and if possible, adjust alignment or replace distorted parts.
	Stiffened hydraulic control mechanism	Check spring tension: If necessary, take down pedal and lubricate components.
	Worn out lining	Install new linings and make sure that the clutch disc, pressure plate and flywheel are not damaged.
The clutch slips.	Insufficient clutch pedal return travel, due to the control and pedal return springs being weak or misadjusted	Locate cause of failure and replace defective springs.
	Weakened or broken diaphragm spring	Overhaul clutch and replace springs.
	Oil or grease on linings	Remove cause of leakage and replace linings if cleaning is ineffective.

	Worn or burned disc linings	Replace linings.
	Overloaded master cylinder due to a restricted transfer port	Overhaul the master cylinder, replace the piston cup if swollen or damaged, and clean the transfer port; bleed the system.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION TM

TRANSMISSION

TM

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AUTOMATIC TRANSMISSION GEAR CONTROL TM-18
THREE SPEED TRANSMISSION TM-19
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TRANSMISSION

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DESCRIPTION

Three speed manual transmission, four speed manual transmission and three speed automatic transmission are available for B110 series. For maintenance service and repair of the three speed automatic transmission, refer to NISSAN FULL AUTOMATIC TRANSMISSION MODEL 3N71A SERVICE MANUAL under separate cover.

This chapter describes mainly about the four speed manual transmission.

Specifications

Item \ Model	B110 (S) U B110 (S) RU VB110 (S) U	B110 (S) TU LB110 (S) T B110 (S) TRU LB110 (S) TR LB110 TRU LB110 TRN VB110 (S) TU VLB110 (S) T KB110 U KLB110 KLB110 U KLB110 N	B110 (S) AU LB110 A B110 ARU LB110 AR
Final gear ratio	3.900	3.900	3.900
Transmission: Type	R3W56	F4W56	3N71A
Transmission: Control system	Steering column shift	Floor shift	Floor shift
Transmission: Gear ratio: 1st	3.380	3.757	2.458
Transmission: Gear ratio: 2nd	1.734	2.169	1.458
Transmission: Gear ratio: 3rd	1.000	1.404	1.000
Transmission: Gear ratio: 4th	–	1.000	–
Transmission: Gear ratio: Reverse	3.640	3.640	3.640
Speedometer gear ratio	17/5 (18/5 for Van)	17/5 (18/5 for Van)	17/5
Oil capacity	1.2 ℓ (0.3 US gal)	1.2 ℓ (0.3 US gal)	5.5 ℓ (1.5 US gal)

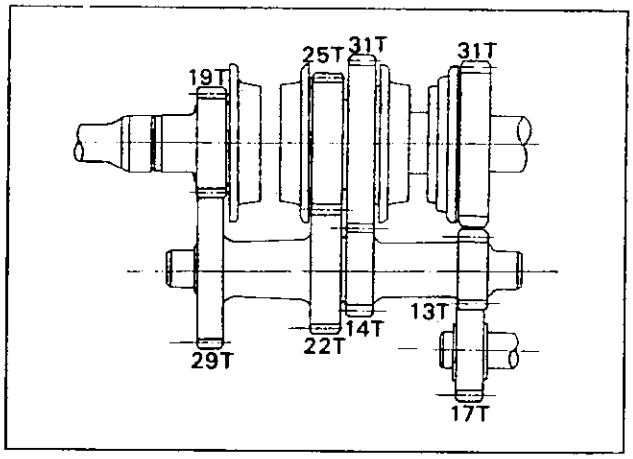


Fig. TM-1 R3W56 gear train

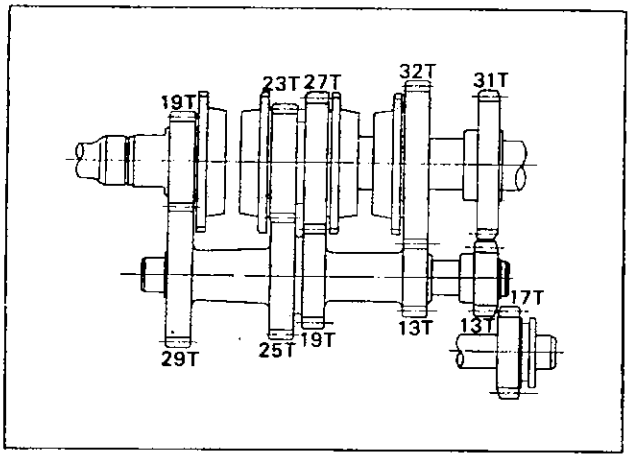


Fig. TM-2 F4W56 gear train

The transmission assembly consists of transmission case which contains gear assembly, and rear extension.

The cast iron adapter plate supports each end of the main shaft, counter shaft, and reverse idler shaft, and front side of the transmission case supports the other ends.

Moreover, the rear extension supports the main shaft rear end.

The gear assembly can be disassembled with the gear assembly installed on the adapter plate.

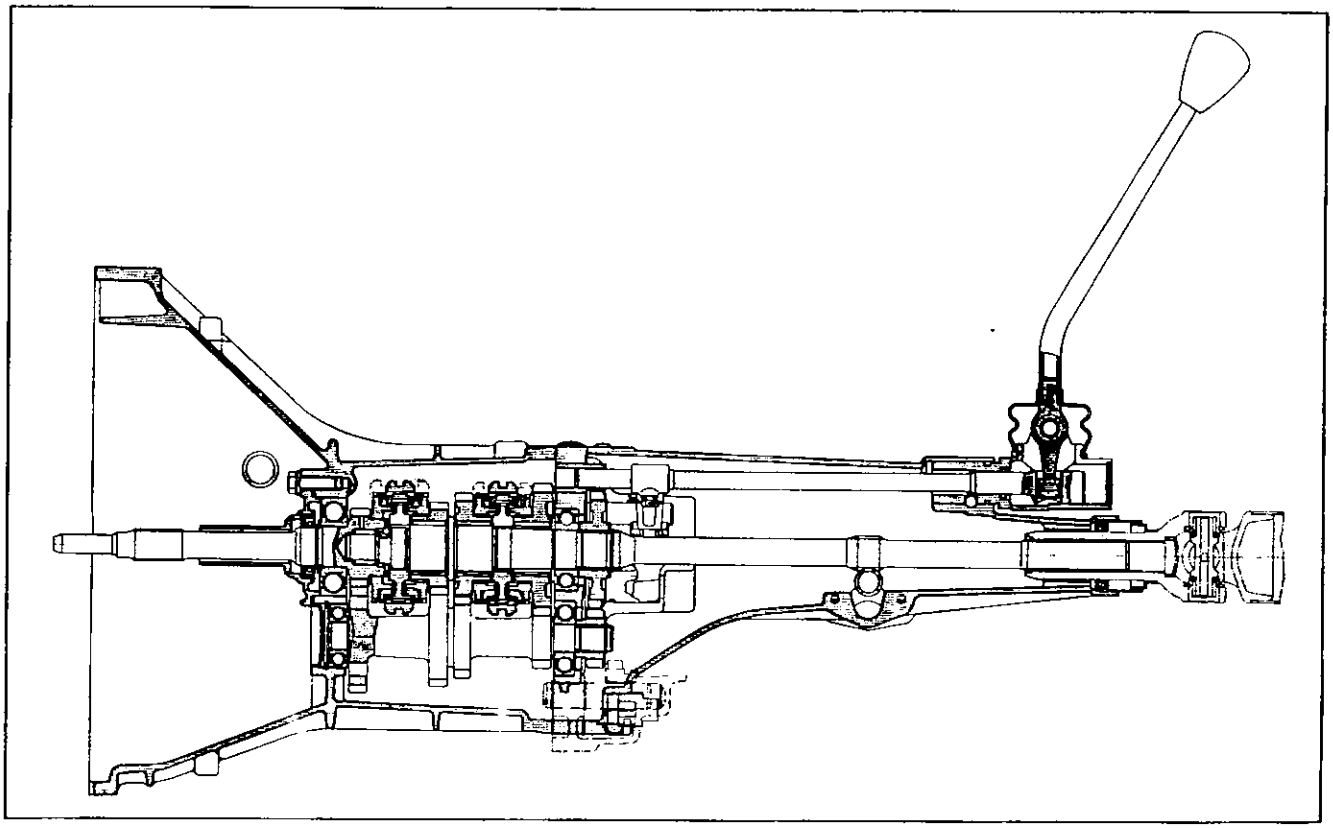


Fig. TM-3 F4W56 transmission

REMOVAL

When dismounting the transmission from the vehicle, the following instructions apply. Refer to the section "ER" (Engine Removal)

1. Jack up the vehicle and support it with four stands. If available, recommend a hydraulic hoist or open pit be utilized.

2. Disconnect the front exhaust tube ① from the exhaust manifold.

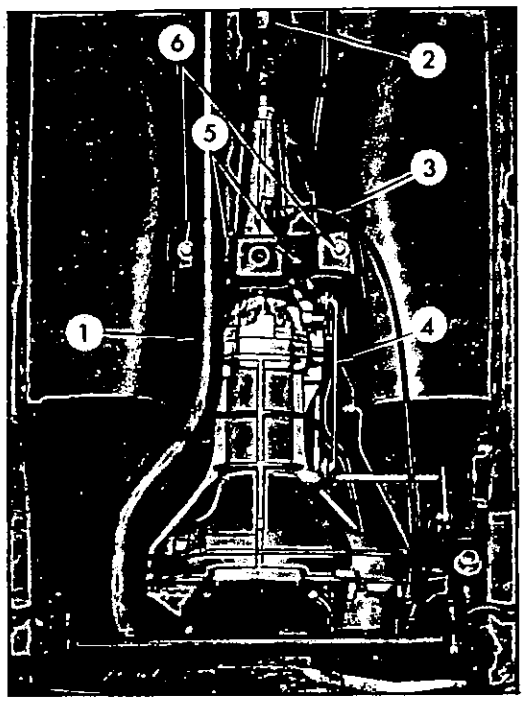


Fig. TM-4 Underside of vehicle

3. Remove the propeller shaft ② by removing four securing bolts from the companion flange of the gear carrier. Seal the end of the rear extension housing to prevent oil leakage.

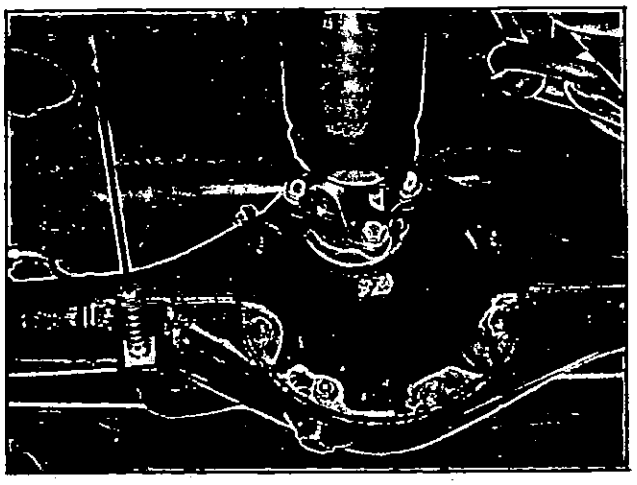
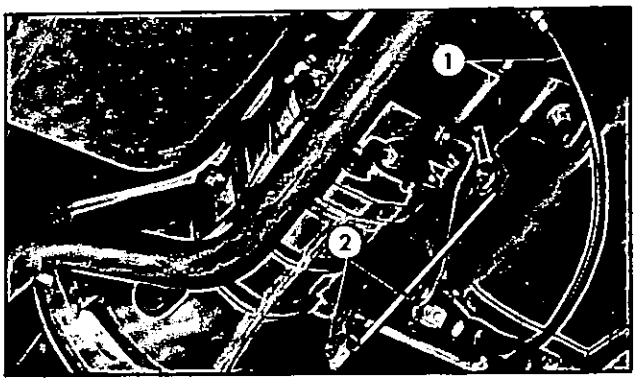


Fig. TM-5 Removing propeller shaft

4. Disconnect the speedometer drive cable ③ and back-up lamp switch cable from the transmission extension housing.

5. Disconnect the shift rods from the shift levers by removing the cotter pin and remove the cross shaft assembly ④ from the transmission case.

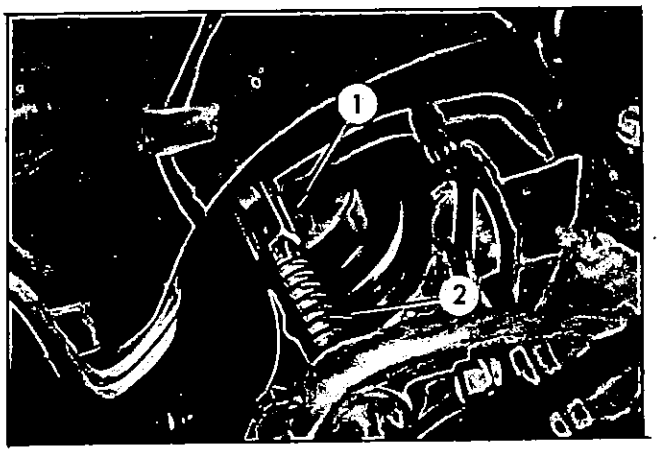


1	Speedometer cable	2	Cotter pin

Fig. TM-6 Disconnecting speedometer cable and remote control linkage

6. (hydraulic clutch control)
Remove the clutch operating cylinder from the clutch housing.

7. (mechanical clutch control)
Disconect the clutch control cable from the withdrawal lever.



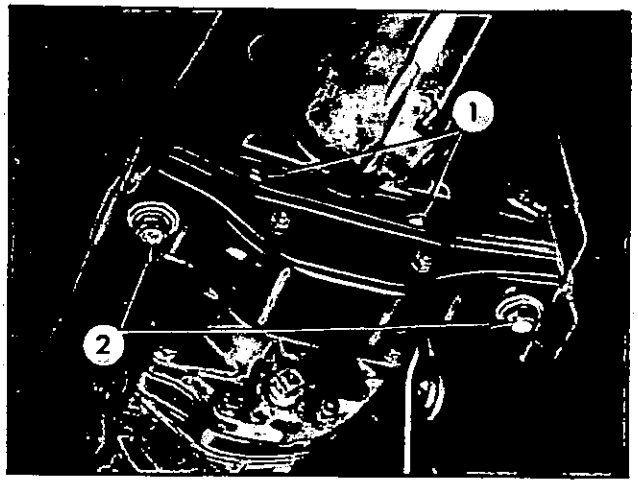
1	Withdrawal lever	2	Clutch control cable

Fig. TM-7 Disconnecting clutch control cable

8. Support the engine with a jack placed under the oil pan. Do not locate the jack under the oil pan drain plug.

To prevent the oil pan from damaging insert a wooden block between the pan and jack.

9. Remove two nuts ⑤ used to attach the transmission to the rear engine mounting member. Place a jack under the transmission and remove two bolts ⑥ used to fix the rear engine mounting member to the body.



1	Rear engine mounting bolts	2	Rear engine mounting installation bolts

Fig. TM-8 Cross member removal

10. Raise the jack supporting the engine to incline the engine in a rearward direction. A sufficient space will be provided for transmission removal.

11. Remove the starting motor and the bolts attaching the clutch housing to the engine.

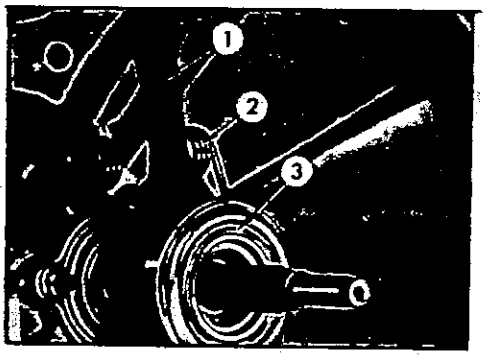
12. Lower the jack under the transmission gradually and withdraw the transmission.

DISASSEMBLY

When disassembling the transmission the following procedure should be adopted. Since the casings are made of aluminum alloy, be careful not to damage any of the castings.

1. Drain gear oil from the transmission.

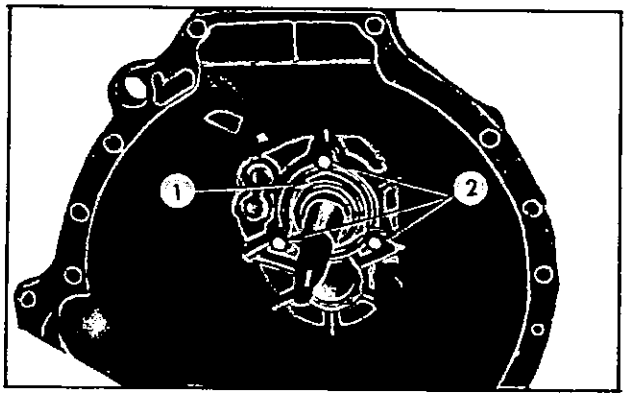
2. Remove the dust cover, release the withdrawal lever return spring, and remove the withdrawal lever and release bearing from the clutch housing.



1	Withdrawal lever	3	Release bearing
2	Return spring		

Fig. TM-9 Removing release bearing and withdrawal lever

3. Remove three bolts securing the front cover and remove the front cover.



1	Front cover	2	Bolt

Fig. TM-10 Removing front cover

4. Remove the speedometer pinion assembly.

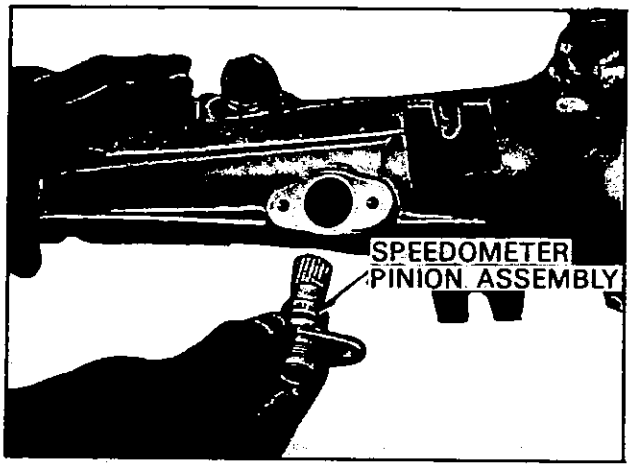
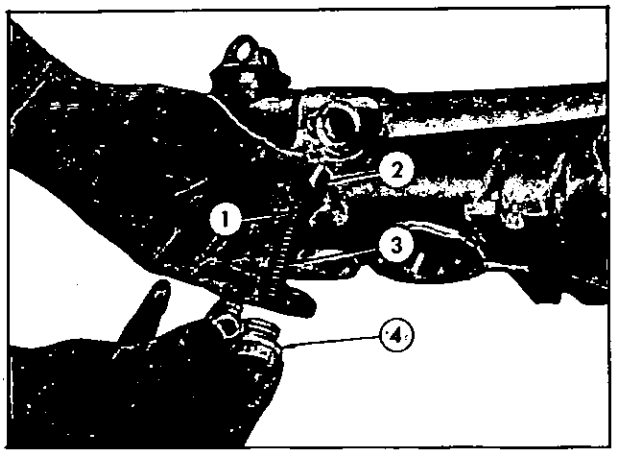


Fig. TM-11 Removing speedometer pinion

5. Remove the return spring plug, and remove the return spring, plunger, and bushing from the inside.



1	Plunger	3	Return spring
2	Bush	4	Return spring plug

Fig. TM-12 Removing return spring

6. Remove the striking rod pin from the striking rod rear end, and separate the striking rod from the control lever bracket.

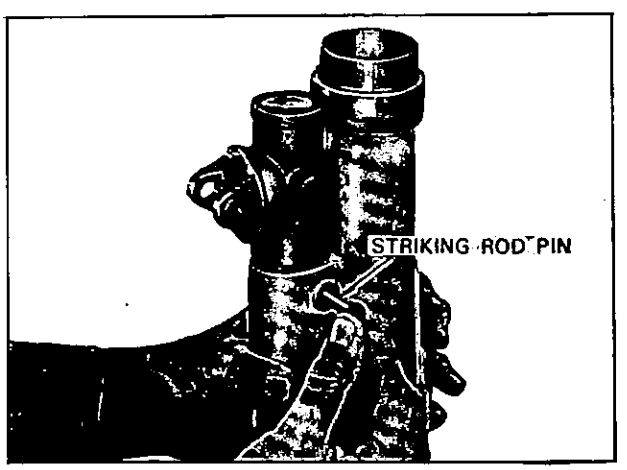


Fig. TM-13 Removing striking rod

7. Remove eight bolts securing the rear extension housing and remove the housing.

Note: Lightly tap the circumference with a wooden mallet, and withdraw the housing.

8. Separate the adapter plate from the transmission case.

Note: a. The main shaft assembly and counter shaft assembly are installed on the adapter plate.

b. When removing, be careful not to lose bearing washer installed on the front end of the counter shaft.

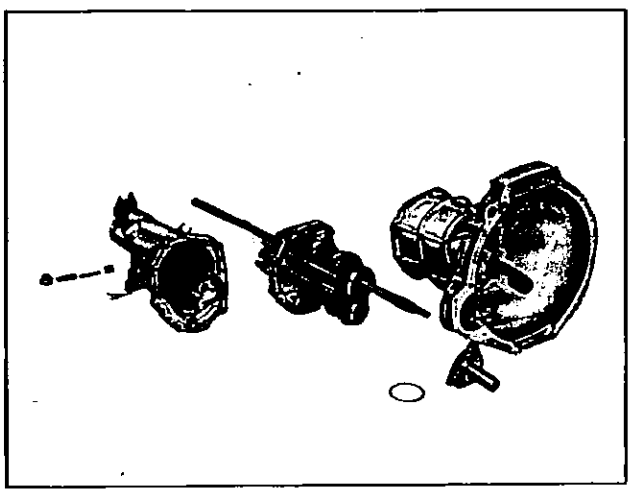


Fig. TM-14 Transmission disassembly

9. Facing the reverse idler gear upward, set it on an adapter setting plate (special tool ST23820000), and secure them in a vise.

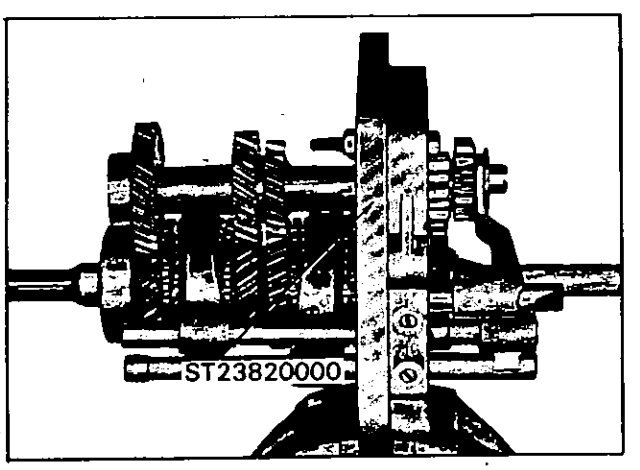
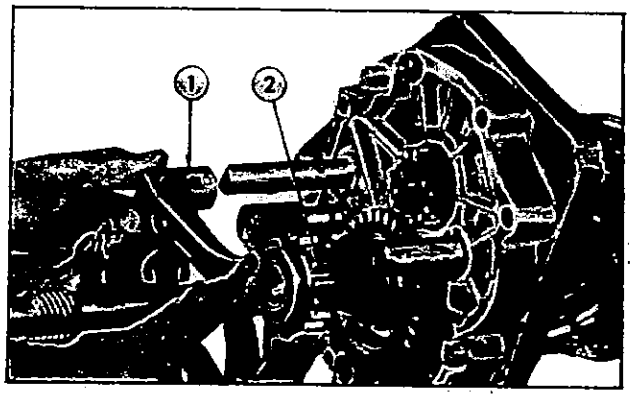


Fig. TM-15 Setting transmission gear assembly

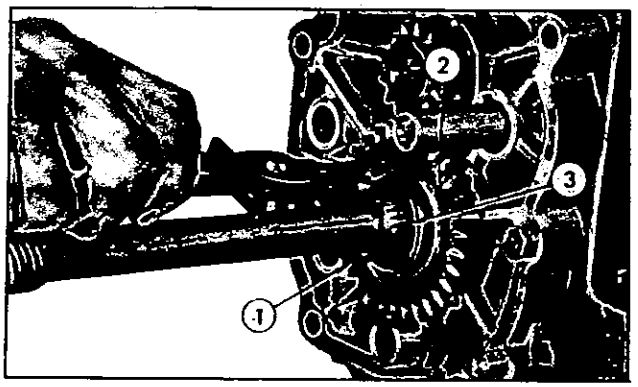
10. Remove the retaining pin by the use of a fork rod pin punch (special tool ST23520000), and withdraw the reverse gear shift fork and reverse idler gear.



1	Reverse gear shift fork	2	Reverse idler gear

Fig. TM-16 Withdrawing reverse idler gear and shift fork

11. Remove the snap ring by the use of a pair of snap ring pliers, and remove the washer and reverse gear.



1	Snap ring	3	Washer
2	Reverse gear		

Fig. TM-17 Removing snap ring

12. Remove retaining pin from each shift fork by the use of a fork rod pin punch (special tool ST23520000).

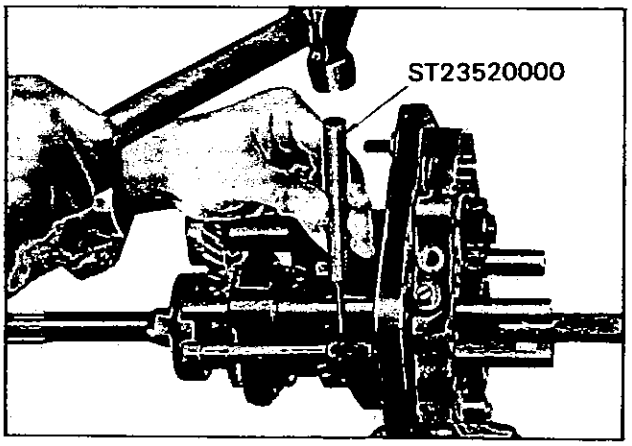


Fig. TM-18 Removing retaining pin

13. Remove the check ball plugs (for all fork rods), and remove the reverse gear fork rod, 3rd & 4th gear fork rod, and 1st & 2nd gear fork rod from the adapter plate.

Note: Be careful not to lose the check ball and check spring.

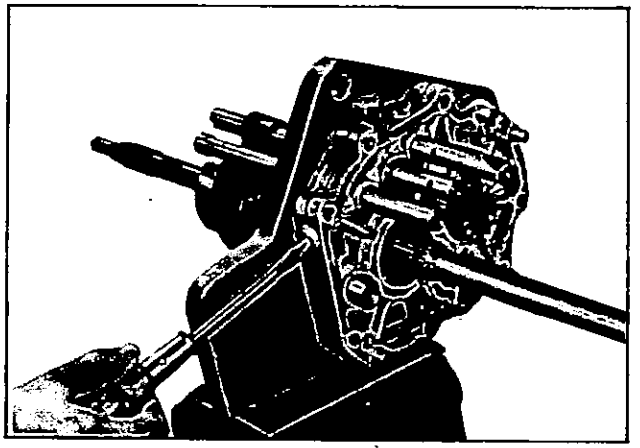


Fig. TM-19 Removing check ball

14. Lightly tap the main shaft with a wooden mallet, and separate the main shaft assembly and counter shaft assembly from the adapter plate.

Note: When separating the main shaft assembly and countershaft assembly, be careful not to drop them. They may be broken.

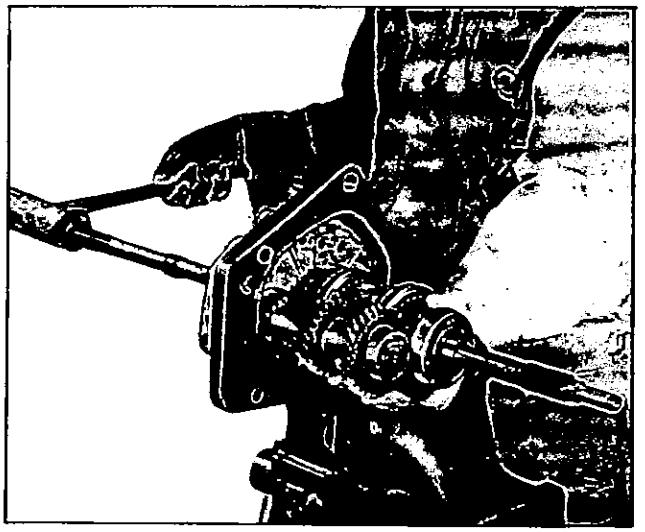
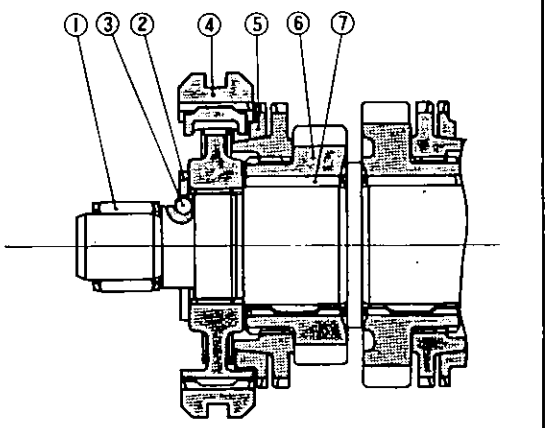


Fig. TM-20 Removing gear assembly

15. Remove the needle bearing, synchronizer hub thrust washer, steel ball, 3rd & 4th synchronizer mechanism, baulk ring, 3rd gear, and main shaft needle bearing toward the front side in that order.



1	Needle bearing	5	Baulk ring
2	Thrust washer	6	3rd gear
3	Steel ball	7	Needle bearing
4	Coupling sleeve		

Fig. TM-21 Layout of main shaft

16. Remove the main bearing from the main shaft by the use of a bearing puller (special tool ST22730000) and a press.

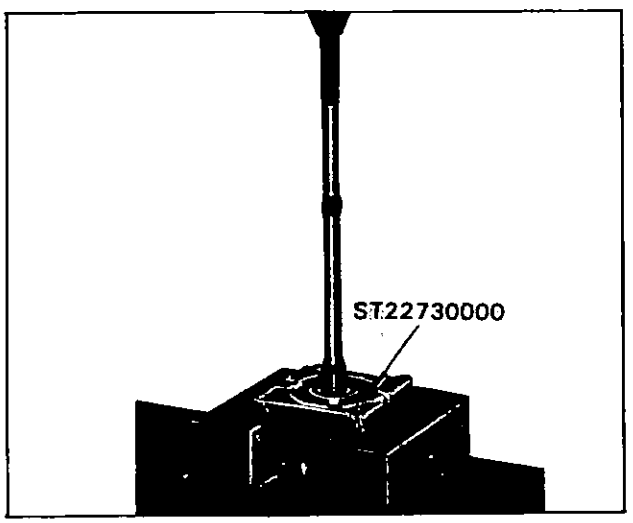
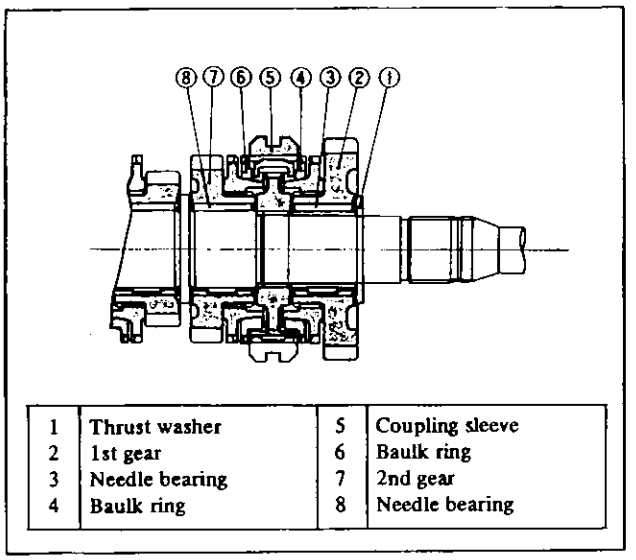


Fig. TM-22 Removing main drive bearing

17. Remove the thrust washer, 1st gear, needle bearing, baulk ring, 1st & 2nd synchronizer mechanism, baulk ring, main shaft 2nd gear, needle bearing, etc. from the main shaft.



1	Thrust washer	5	Coupling sleeve
2	1st gear	6	Baulk ring
3	Needle bearing	7	2nd gear
4	Baulk ring	8	Needle bearing

Fig. TM-23 Layout of main shaft

18. Remove the bearing from the counter gear.

19. Remove the snap ring from the main drive gear, and remove the main shaft bearing.

INSPECTION

Thoroughly clean all disassembled parts with solvent, and check them for wear, damage, and other defective conditions.

Transmission case and rear extension

Clean them with solvent thoroughly, and check for crack which may cause oil leaking and other defective conditions.

1. When bur, pitting, and/or other damage exists on the joint, repair or replace.
2. Remove adhesive from the installing surface completely.

3. Repair or replace the dowel pin (knock pin) if damaged, bent, or warped.

4. When rear extension bushing interior is worn unevenly, replace.

Bearing

1. Thoroughly clean the bearing, dry, and remove dust with compressed air.

2. When the ball bearing inner race and center race ball sliding surfaces are worn unevenly and/or unsmooth due to crack, or out-of-round of ball is excessive due to wear or rough surface, replace the bearing with a new one.

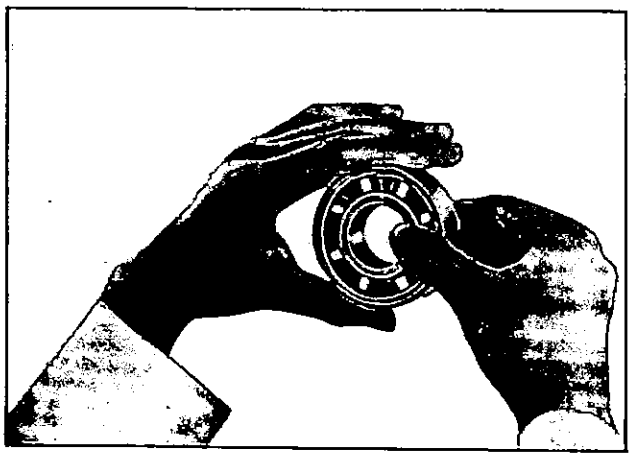


Fig. TM-24 Inspecting ball bearing

3. Replace needle bearing, if worn or damaged.

4. Replace rear extension bushing, if worn or cracked.

Gear and shaft

1. Check the gear for wear, damage and/or crack, and replace, if required.

2. Check the shaft for bending, crack, wear, and worn spline, and replace, if required.

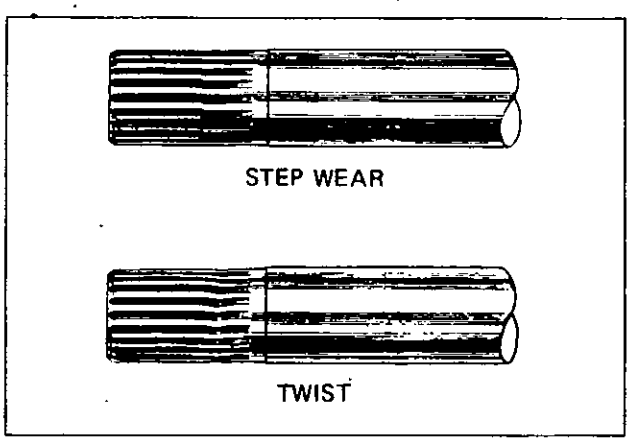


Fig. TM-25 Checking main shaft spline for twisting

3. Measure each gear backlash, and make sure that backlash is in range from 0.08 to 0.15 mm (0.0031 to 0.0059 in). When backlash exceeds this range, recommend both driving and driven gears be replaced as a set.

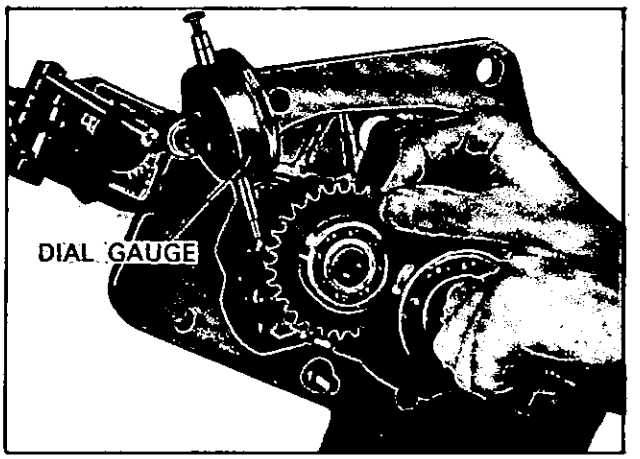


Fig. TM-26 Measuring gear backlash

4. End play of the 1st & 2nd gears should be in range from 0.15 to 0.25 mm (0.0059 to 0.0098 in), and end play of the 3rd gear should be in range from 0.15 to 0.35 mm (0.0059 to 0.0138 in). When end play is deviated from this range, replace with new gears.

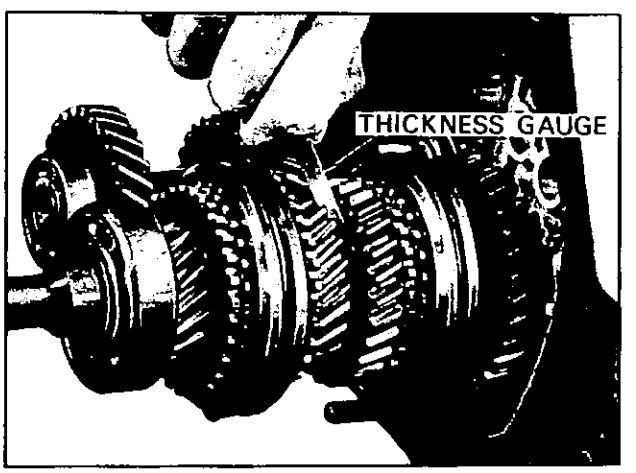


Fig. TM-27 Measuring gear end play

Synchro-hub thrust washer

1. When bronze oil stay is worn excessively, replace the synchro-hub thrust washer with a new one.

2. When both surfaces are warped or damaged, replace.

Baulk ring

1. Check the baulk rings for wear, pitting, chips or burrs. If any abnormal conditions are detected, they must be replaced with new ones.

2. Place the baulk ring in position on the cone of each gear. Push the ring to the gear and check the gap between the end face of the baulk ring and the front face of the clutch teeth. This gap should be within 1.05 to 1.4 mm (0.0413 to 0.0551 in). If it is less than 0.5 mm (0.0197 in), a worn baulk ring may be the cause and a new ring should be fitted.

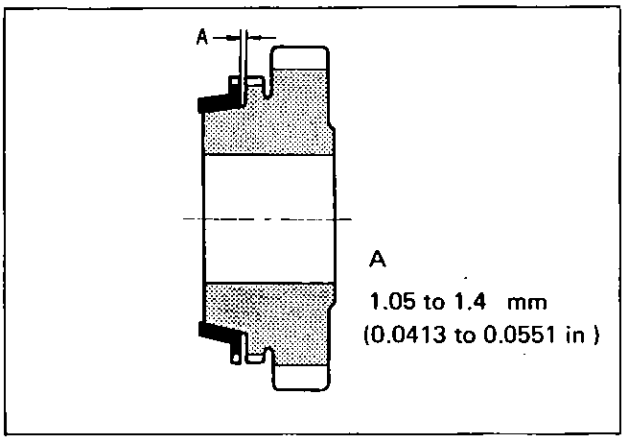


Fig. TM-28 Baulk ring-to-cone installing dimension

Shifting insert

Replace, if worn excessively, worn unevenly, deformed, or damaged.

Oil seal

Replace the oil seal with a new one, if lip is deformed, worn, or cracked, or when the spring is dropped off.

Rear engine mounting insulator

Replace rear engine mounting insulator, if weakened, deteriorated, or cracked.

REASSEMBLY AND ADJUSTMENT

Selecting counter bearing thrust washer

1. Fit the counter bearings to the counter shaft (both front and rear) by the use of a counter shaft bearing press stand (special tool ST23030000) and by means of pressing.

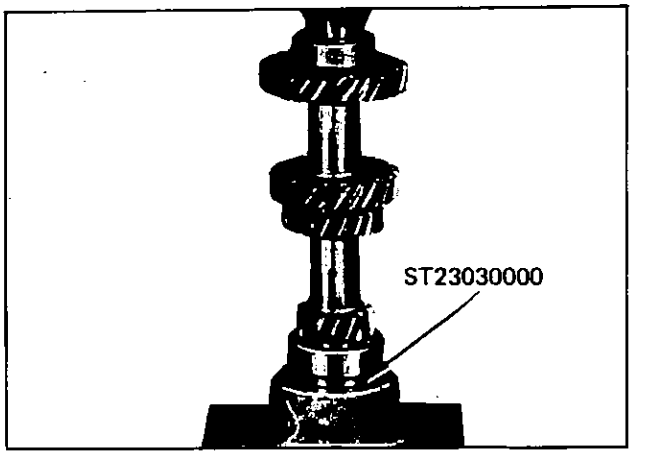


Fig. TM-29 Fitting counter shaft bearing

2. Install the counter shaft assembly to which the counter bearings have been fitted on the transmission case, and determine thickness of counter bearing shim to be selected by the use of a counter gear height gauge (special tool ST23050000).

Note: a. Apply the bearing into the groove completely.

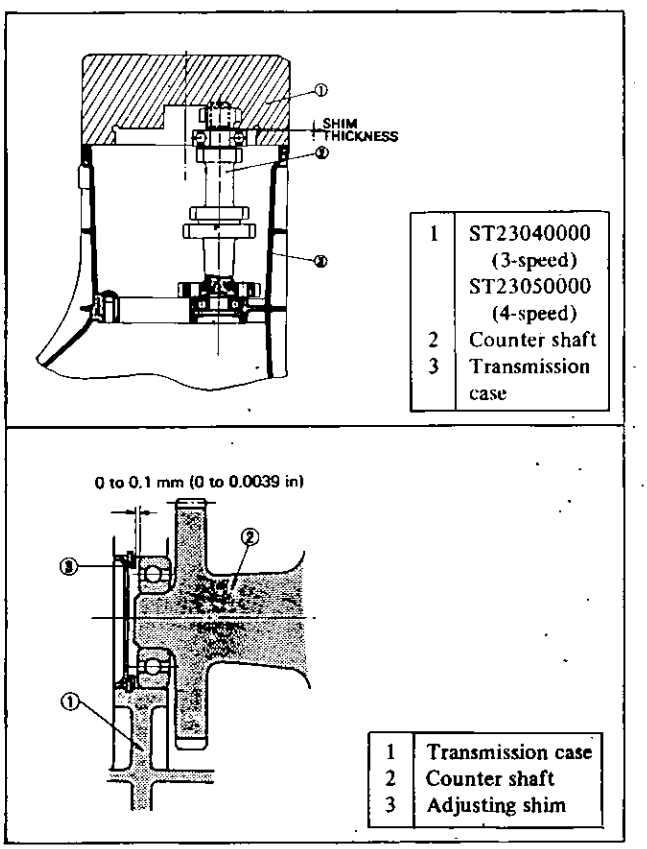


Fig. TM-30 Selecting counter shaft front bearing shim

b. Select shim(s) from those shown in the following table so that end play of the counter shaft is 0 to 0.2 mm (0 to 0.0079 in).

Part number	Thickness mm (in)
32224-18001	0.8 (0.0315)
32224-18002	0.9 (0.0354)
32224-18003	1.0 (0.0394)
32224-18004	1.1 (0.0433)
32224-18005	1.2 (0.0472)
32224-18006	1.3 (0.0512)

c. Be sure to measure at two or more positions on end surface of the outer race.

3. Remove the counter shaft assembly from the transmission case.

Main shaft

Note: When assembling, be sure to apply gear oil to rotating and sliding parts such as bushing, bearing, etc.

1. Install the coupling sleeve, shifting insert, and synchronizer spring on the synchronizer hub.

Note: a. Be careful not to hook front and rear ends of the synchronizer spring to same insert.

b. Be sure that the hub and sleeve operates smoothly and correctly by hand.

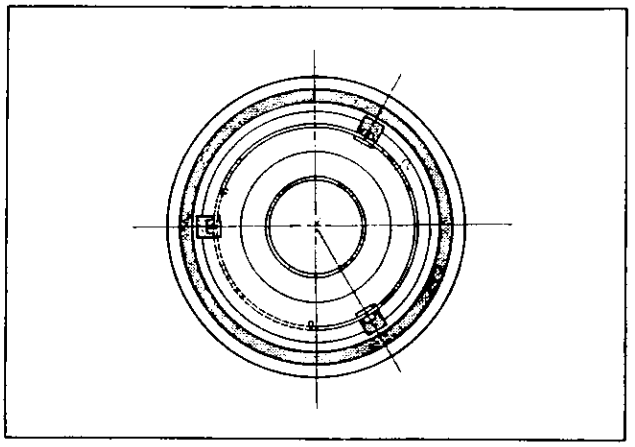


Fig. TM-31 Installing spring spread

2. Install the needle bearing from rear end of the main shaft.

3. Install the main shaft 2nd gear.

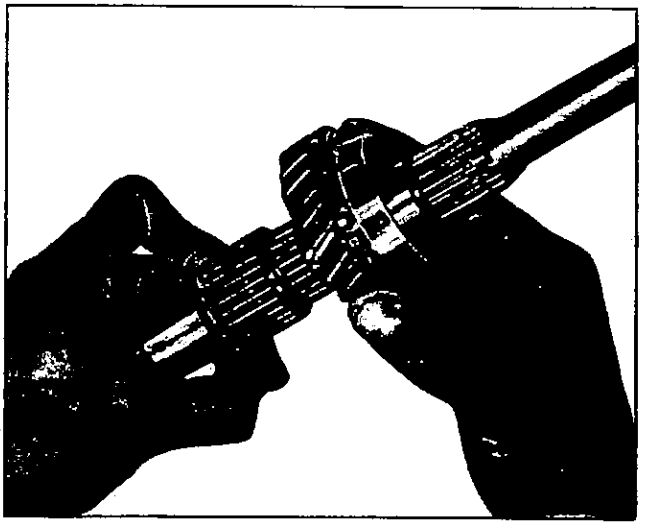


Fig. TM-32 Installing main shaft 2nd gear

4. Install the baulk ring.

5. Install the synchro-hub assembly.

Note: Line up the shifting insert to groove on the baulk ring.

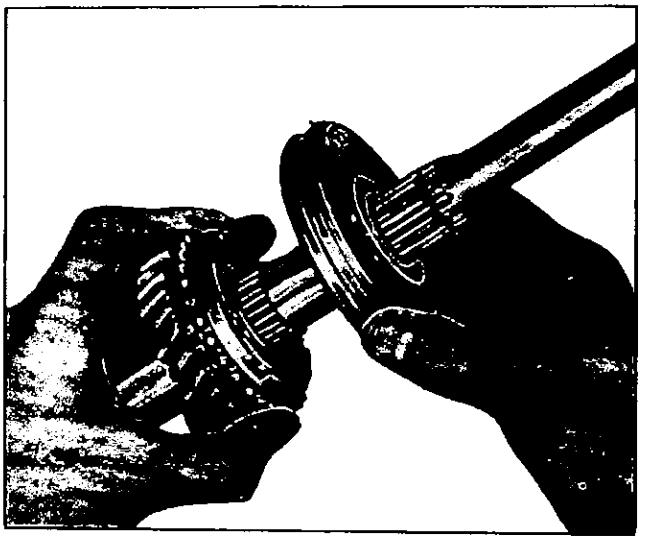


Fig. TM-33 Installing synchro-hub

6. Install the 1st gear side needle bearing, baulk ring, and main shaft 1st gear in that order.

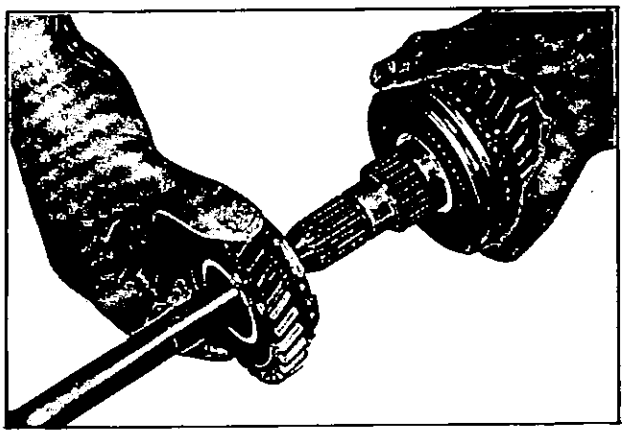


Fig. TM-34 Installing main shaft 1st gear

7. Apply the main shaft thrust washer, and fit the main shaft bearing (rear side) by the use of a main shaft bearing drift (special tool ST22350000).

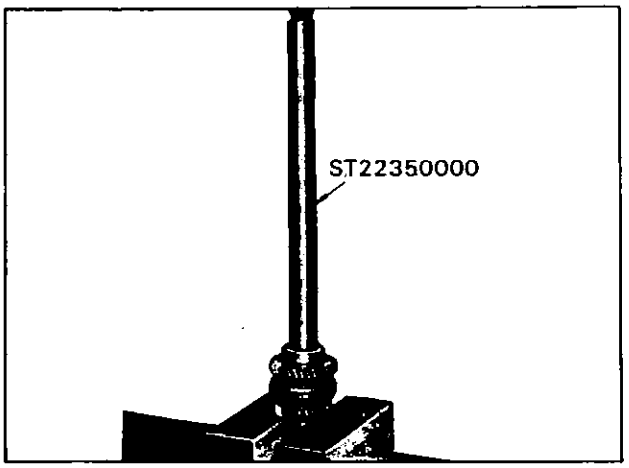


Fig. TM-35 Fitting main shaft bearing

8. Install the meedle bearing, main shaft 3rd gear, baulk ring, and synchronizer hub assembly from front end of the main shaft.

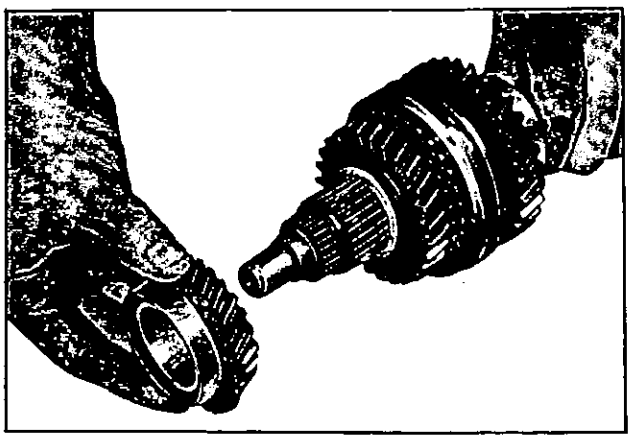


Fig. TM-36 Installing main shaft 3rd gear

9. Install the steel ball, synchro-hub thrust washer, and main shaft pilot bearing.

Note: a. Grease sliding surface of the steel ball and thrust washer.

b. When installing the thrust washer, be careful to face the front and rear directions correctly.

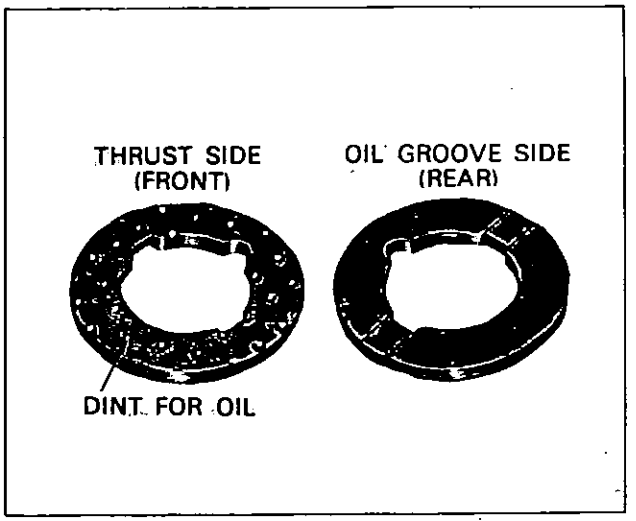


Fig. TM-37 Synchro-hub thrust washer

10. Fit the main bearing (front side) to the main drive gear, and install the main bearing washer and snap ring.

Note: a. When installing the main bearing washer, be sure to face the web portion to the bearing side.

b. Be sure to fit the snap ring correctly and securely to the groove.

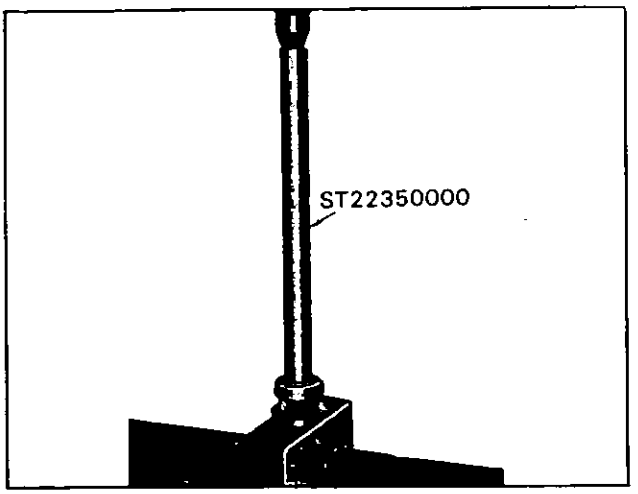


Fig. TM-38 Fitting main shaft bearing

11. Install the baulk ring on the main drive gear, and combining with the main shaft, complete the main shaft assembly.

12. Combine the main shaft assembly with the counter shaft, and install them on the adapter plate.

Note: Apply the main bearing (front end) approximately 5 mm (0.1969 in) first, line up the counter shaft bearing center, lightly tap the main drive gear with a wooden mallet, and thus, install the main shaft assembly and counter shaft on the adapter plate.

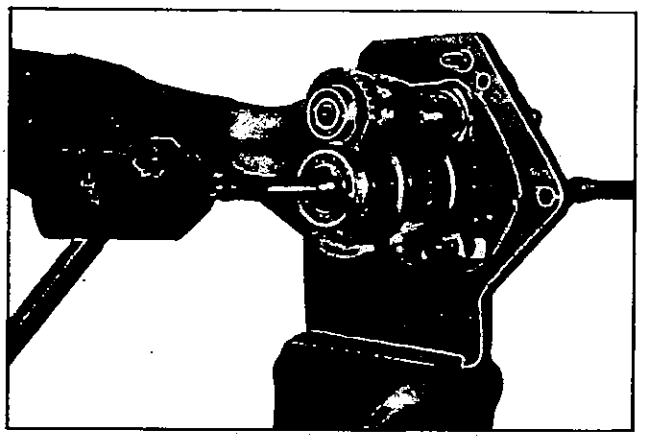
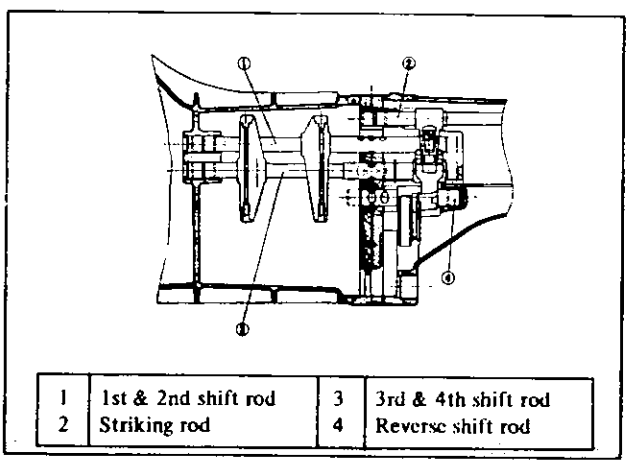


Fig. TM-39 Combining gear assembly

13. Install the shift fork on each fork rod.

Note: a. Pay attention on the shift fork installing direction.

b. Be sure that there is no gap between the fork rod and shift fork.



1	1st & 2nd shift rod	3	3rd & 4th shift rod
2	Striking rod	4	Reverse shift rod

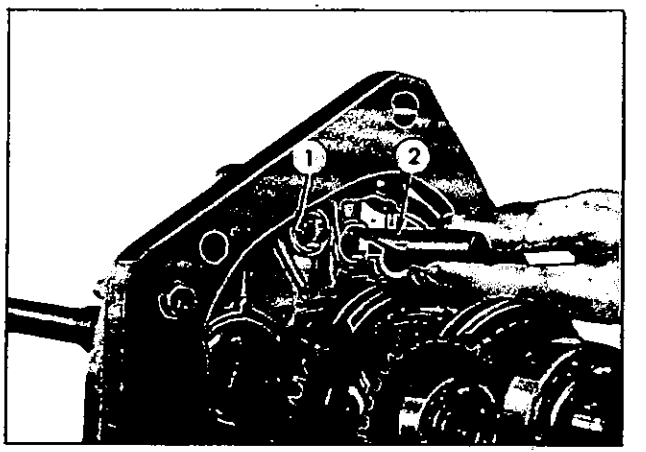
Fig. TM-40 Layout of shift fork and fork rod

14. Install each fork rod together with the check ball plug, check ball, check ball spring, and interlock plunger by the use of a fork rod guide (special tool ST23620000).

Note: a. Install the fork rod at a position where the fork rod check ball groove is coincided with the ball.

b. In the standard position, upper surface of the plug is flush with upper surface of the adapter.

c. When installing the plug, be sure to apply thread locking agent.



1	Check ball	2	Special tool (ST23620000)

Fig. TM-41 Installing check ball

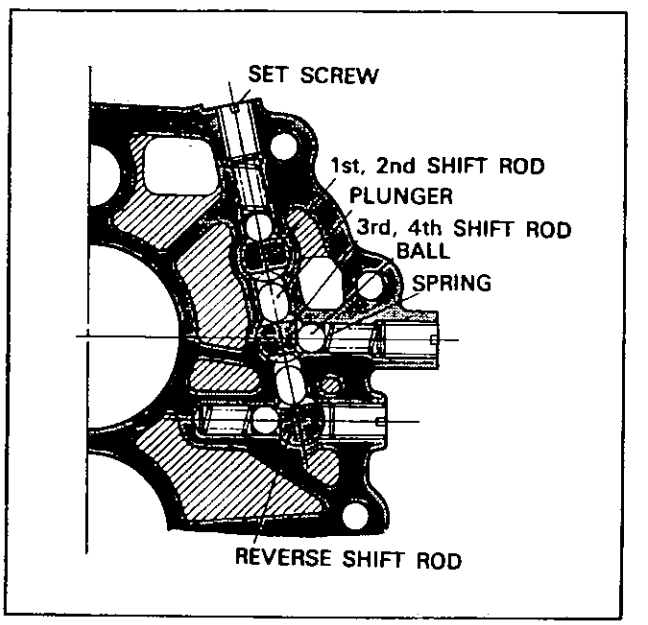


Fig. TM-42 Layout of check ball

15. Drive shift fork retaining pin.

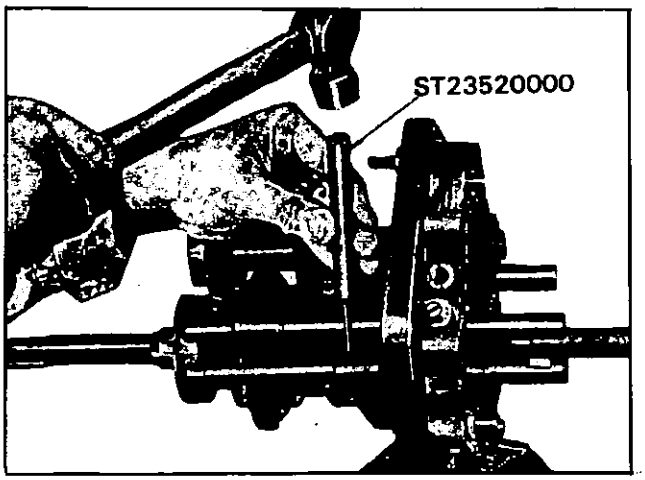
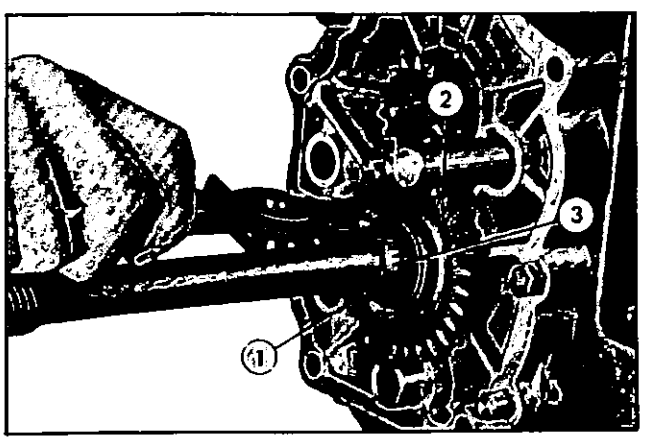


Fig. TM-43 Driving retaining pin

16. Install the main shaft reverse gear, thrust washer, and secure them with a snap ring.

Note: When installing the thrust washer, be sure to face the web portion to the gear side.

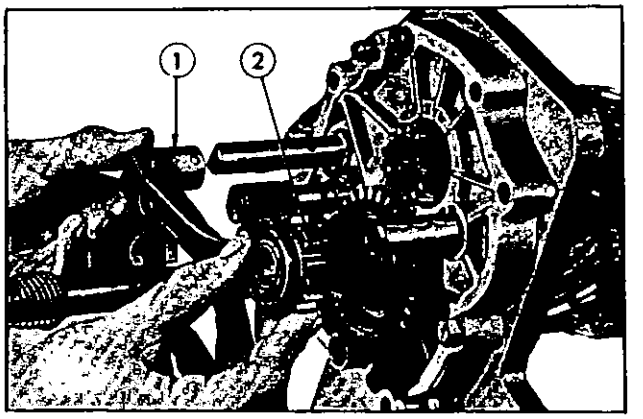


1	Snap ring	3	Washer
2	Reverse gear		

Fig. TM-44 Installing reverse gear

17. Install the reverse idler gear together with the reverse shift fork. Drive shift fork retaining pin.

Note: In order to insure that the interlock plunger is not cracked, apply one fork rod, operate the other fork rod, and make sure that the gear does not mesh.



1	Reverse gear shift fork	2	Reverse idler gear

Fig. TM-45 Installing reverse idler gear

18. Install the 3rd & 4th shift fork, and drive the shift fork retaining pin by the use of a special tool (ST23520000).

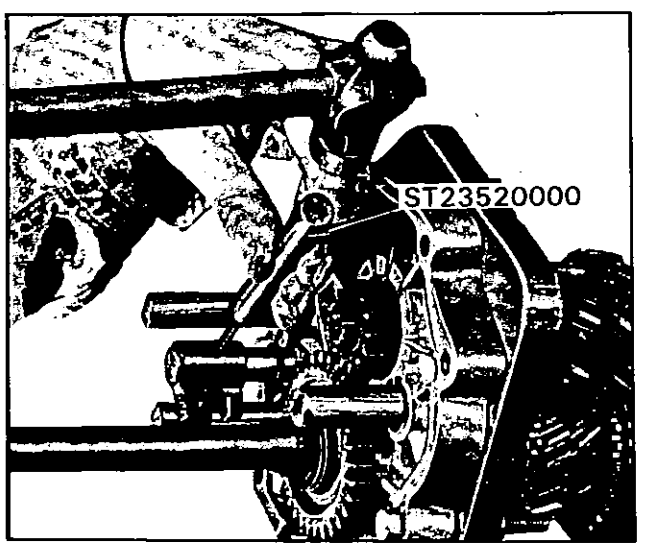


Fig. TM-46 Driving retaining pin

19. Remove the adapter plate from the attachment, and install it on the transmission case.

Note: a. Be sure to install the counter bearing shim selected previously.

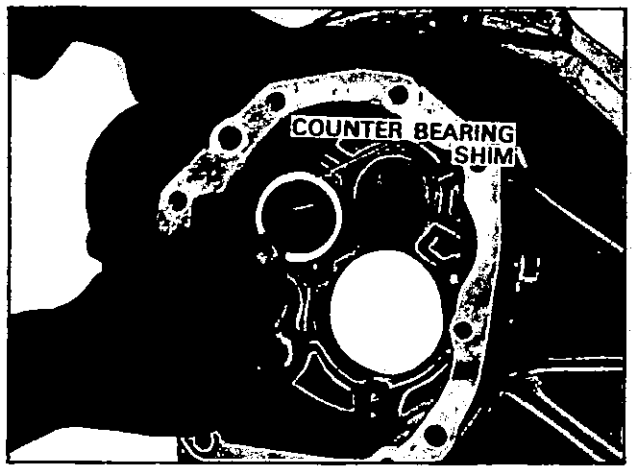


Fig. TM-47 Installing counter bearing shim

b. Remove oil, apply adhesive on the joint, and install the adapter plate on the transmission case.

c. When installing, lightly tap with a wooden mallet, and be sure to line up the knock pin hole.

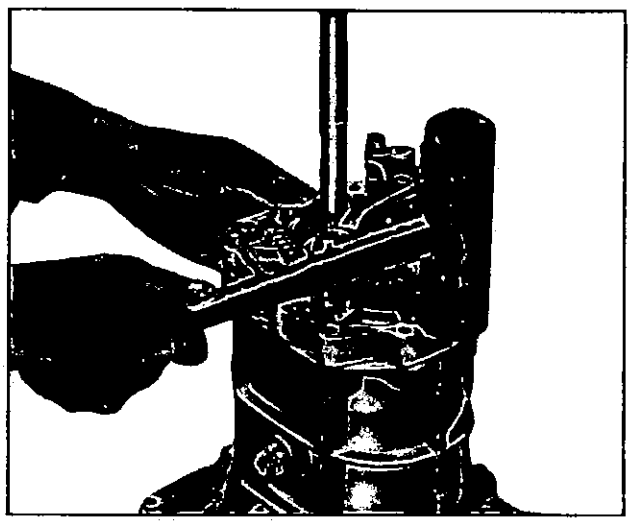


Fig. TM-48 Installing transmission case

20. Coinciding the striking lever, install the rear extension.

Note: a. Be sure to remove oil and apply adhesive on the surface joined with the adapter plate.

b. Tighten the installation bolts symmetrically and evenly so as not to tighten unevenly.

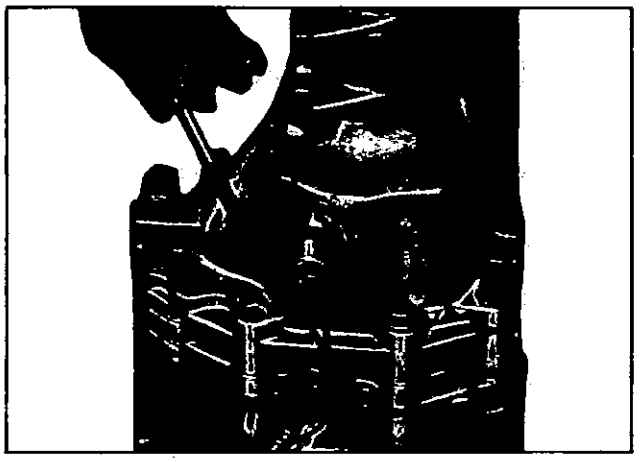
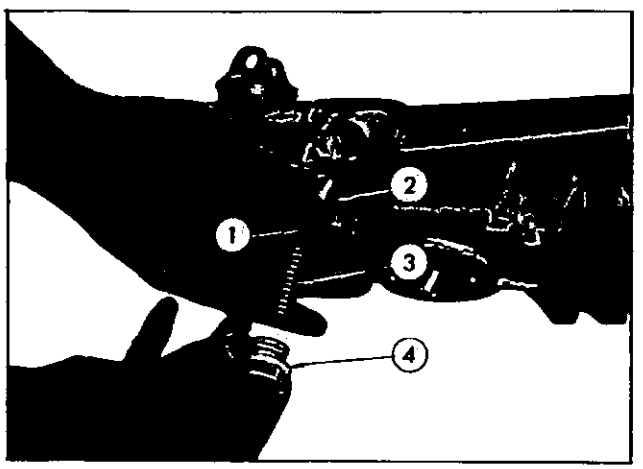


Fig. TM-49 Installing rear extension

21. Install the bushing, plunger, return spring, and return spring plug.

Note: When installing, apply adhesive to the return spring plug.



1	Plunger	3	Return spring
2	Bush	4	Return spring plug

Fig. TM-50 Installing return spring

22. Install the stopper pin and E-ring.

23. Install the speedometer pinion.

24. Select main drive gear bearing shim(s).

Note: Measure depth from the front cover installing surface to end surface of the main bearing outer race by the use of vernier caliper depth gauge, and select shim(s) from those shown in the following table so that the depth is $5\ ^{+0.15}_{-0}$ mm ($0.1969\ ^{+0.0059}_{-0}$ in).

Part number	Thickness mm (in)
32208-18000	0.5 (0.0197)
32208-18001	0.2 (0.0079)
32208-18002	0.1 (0.0039)

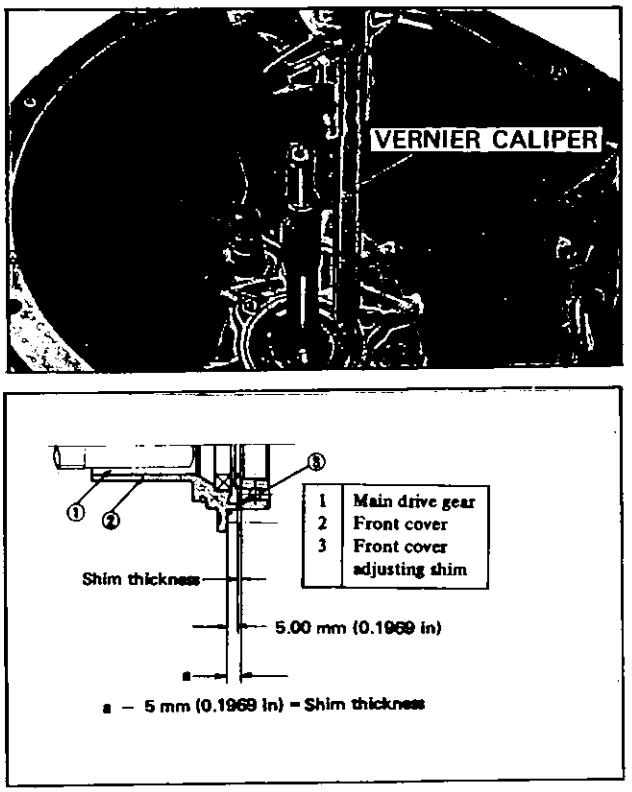

VERNIER CALIPER
1 Main drive gear
2 Front cover
3 Front cover adjusting shim
Shim thickness
5.00 mm (0.1969 in)
a – 5 mm (0.1969 in) = Shim thickness

Fig. TM-51 Selecting main drive gear bearing shim

25. Install the oil seal on the front cover, and secure it together with the adjusting shim and O-ring.

Note: Grease the oil seal lip.

26. Install the clutch release bearing, return spring, and withdrawal lever.

27. Upon completion of the reassembly, confirm that:

(1) The main shaft is not turned synchronously when gear is shifted to neutral and the main drive gear is turned lightly.

(2) Operating force is not excessive and gears can be shifted smoothly when shifted to the individual speeds.

REINSTALLATION

Remount the transmission in reverse sequence of dismounting.

TRANSMISSION GEAR CONTROL

CONTENTS

DESCRIPTION TM-15
COLUMN SHIFT CONTROL SYSTEM TM-17
Removal TM-17
Inspection and repair TM-17
Installation TM-18
Adjustment TM-18

DESCRIPTION

The B110 series uses three types of transmission control system. Those vehicles mounted with three forward speed transmission use column shift control system, and when collapsible steering (option) is adopted, the vehicle uses collapsible control system. Those vehicles mounted with four forward speed transmission use direct floor shift control system, and those mounted with automatic transmission use remote control floor shift system.

The collapsible transmission control rod is used together with the collapsible steering. When collision occurs, delrine mold located in an intermediate position of the control rod is cut off, the control rod slides toward axial direction, and shock is absorbed.

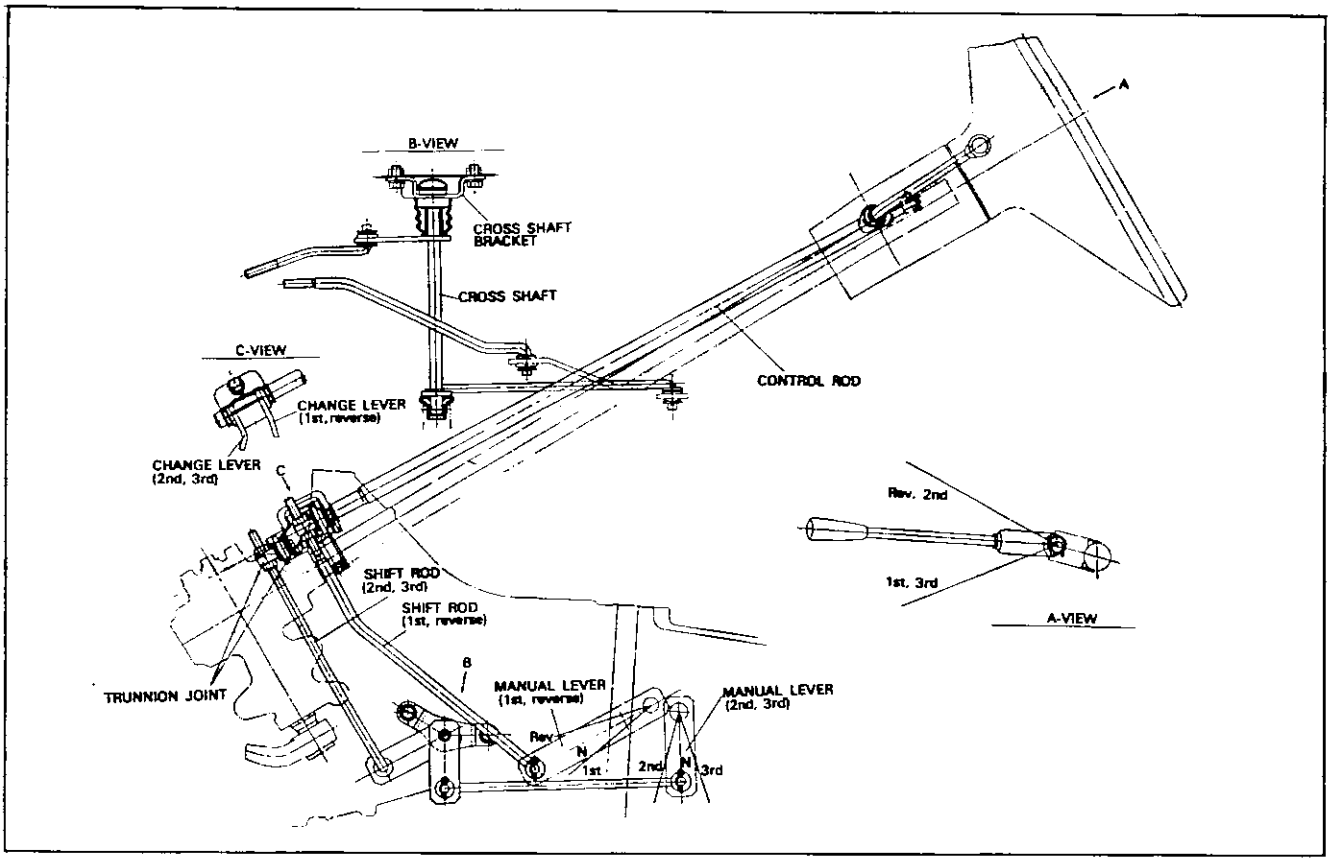


Fig. TM-52 Control system 3-forward speed transmission

COLUMN SHIFT CONTROL SYSTEM

Remval

1. Remove the steering wheel assembly.

2. Remove the steering column shell cover, turn signal and lighting switch complete.

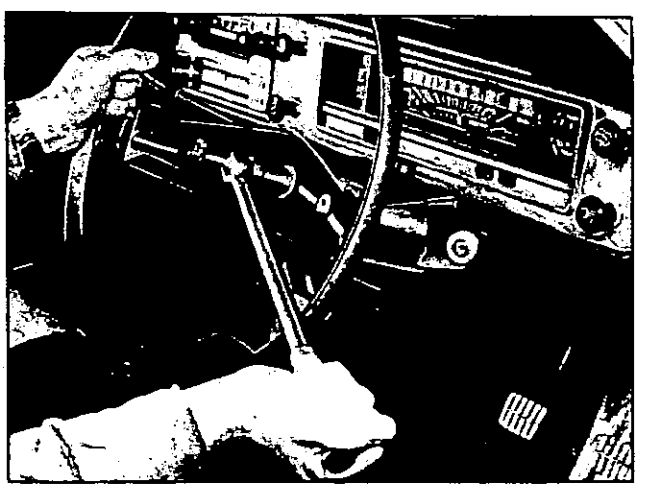


Fig. TM-53 Removing steering wheel

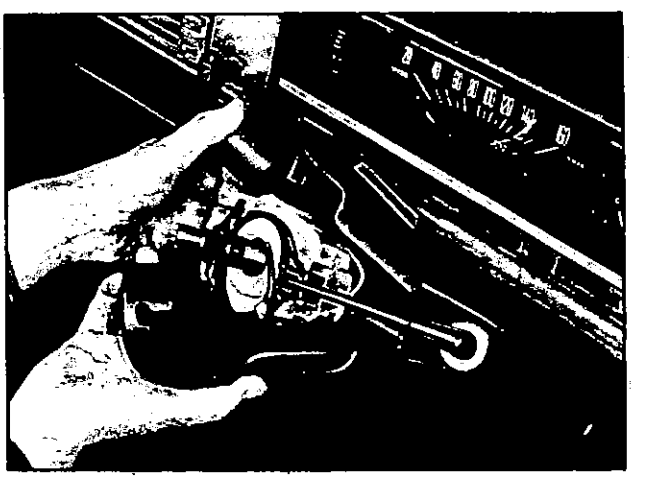


Fig. TM-54 Removing steering column shell cover

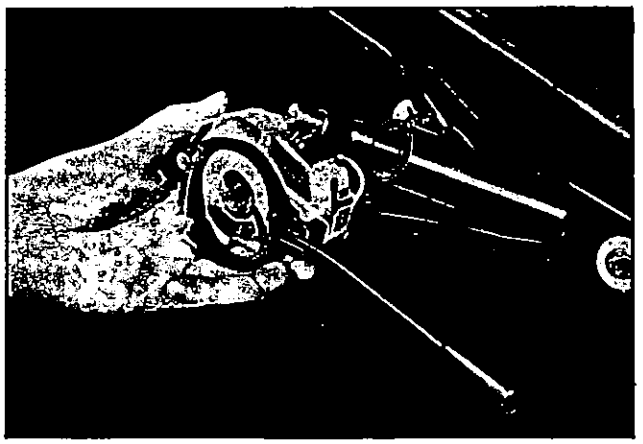
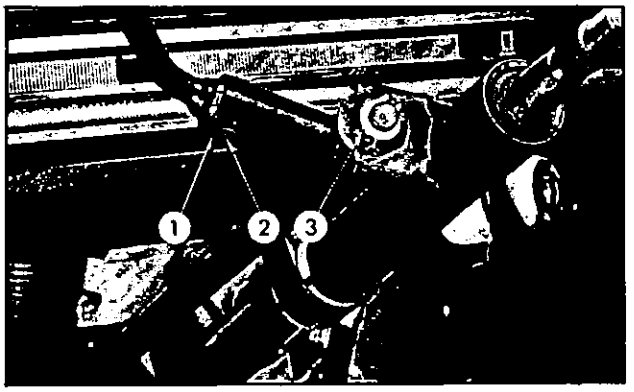


Fig. TM-55 Removing turn signal and lighting switch

3. Remove the snap ring and control lever pivot pin, and withdraw the hand lever.



1	Snap ring	3	C-washer
2	Control lever pivot pin		

Fig. TM-56 Withdrawing hand lever

4. Remove the C-washer.

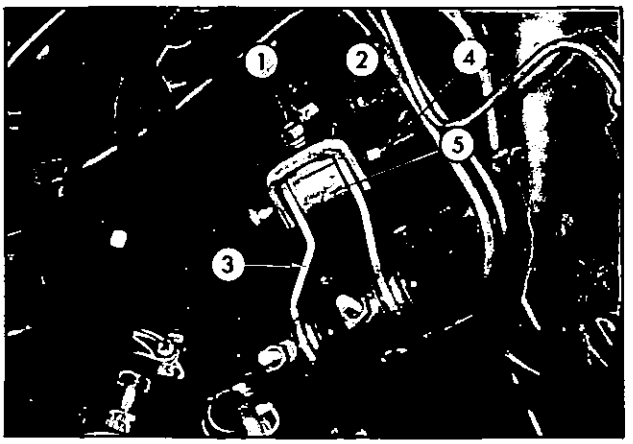


Fig. TM-57 Removing change lever

5. Remove the speed change retainer bolt (1).

6. Remove the speed change retainer (2).

7. Remove the 2nd & top change lever and bush (3) from the control rod (4).

8. Lower the control rod so that the control lever pin comes out from the lower bracket (5), and withdraw the control lever pin.

Note: Lower the control rod to such an extent that the control lever pin does not interfere the lower bracket.

9. Withdraw the control rod from the passenger compartment.

10. Remove the cotter pins, and disconnect the speed change rods. Remove the cross shaft from the side member, and withdraw the cross shaft assembly.

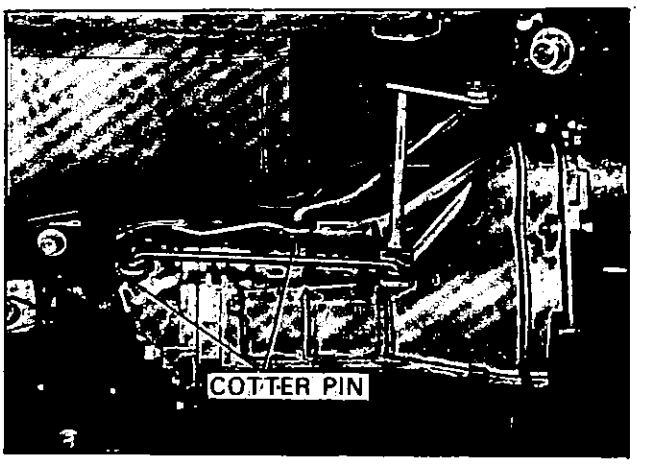


Fig. TM-58 Cross shaft assembly

Inspection and repair

Check all sliding parts and component parts for wear and other damages, and replace as required.

Note: Especially for collapsible type control rod, be careful not to apply a large load toward the axial direction when delivering and installing.
When installing the control rod and slackness exists toward the axial direction, replace.

Installation

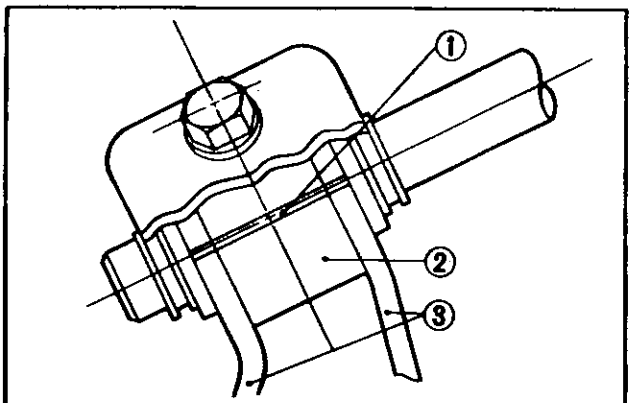
Install the control system in reverse sequence of removal. Before installing and assembling, apply chassis grease to all sliding surfaces.

Adjustment

1. Set transmission side manual lever to the neutral position.

2. Temporarily connect the trunion on the lower support bracket head to each rod.

3. Set the rod on the lever stationarily so that the grooves (for adjustment of neutral position) on the upper surface of the lower support bracket and each lever are aligned straight.



1	Neutral setting groove	3	Shift lever
2	Lower support bracket		

Fig. TM-59 Adjustment of neutral setting

4. Upon completion of the above adjustment, operate the hand lever to the individual select and shift directions and make sure that the hand lever can be operated smoothly and lightly.

Readjust, if dragging, slackness, and/or other unusual conditions exist.

AUTOMATIC TRANSMISSION GEAR CONTROL

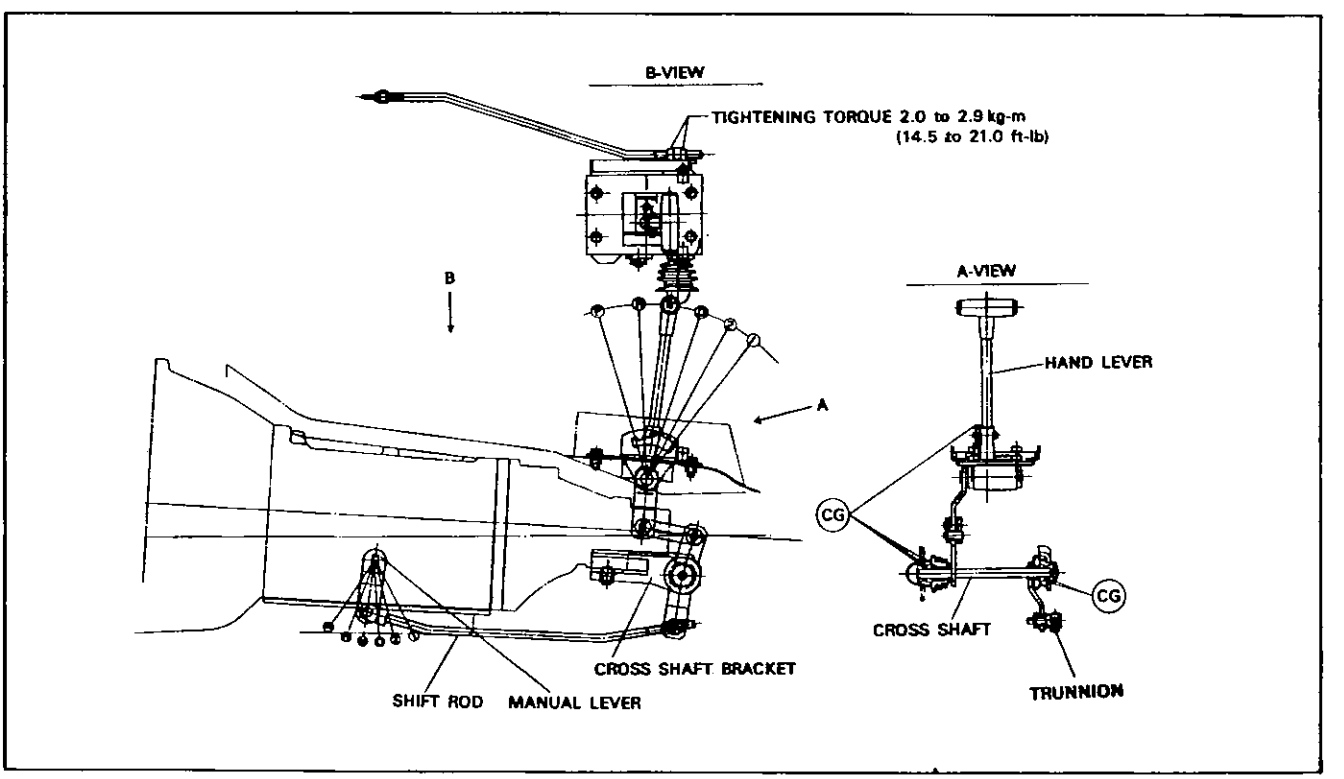


Fig. TM-60 Control system automatic transmission

ADJUSTMENT

1. Set transmission side manual lever and hand lever to their neutral positions.

2. Adjust length of the shift rod at the cross shaft lever, and fix the shift rod.

3. After adjusting linkage, shift change lever to the individual speed positions, and make sure that the shift lever is operated smoothly. When the lever drags, or when the lever is warped or loose, readjust finely until dragging, warping, and/or slackness is eliminated completely.

Note: a. Be sure to apply chassis grease to the sliding parts, or to fill such parts with chassis grease.

b. Make sure that hand lever positions are coincided with the gear position marks on the console box indicator when the gears are shifted to the individual positions.

THREE SPEED TRANSMISSION

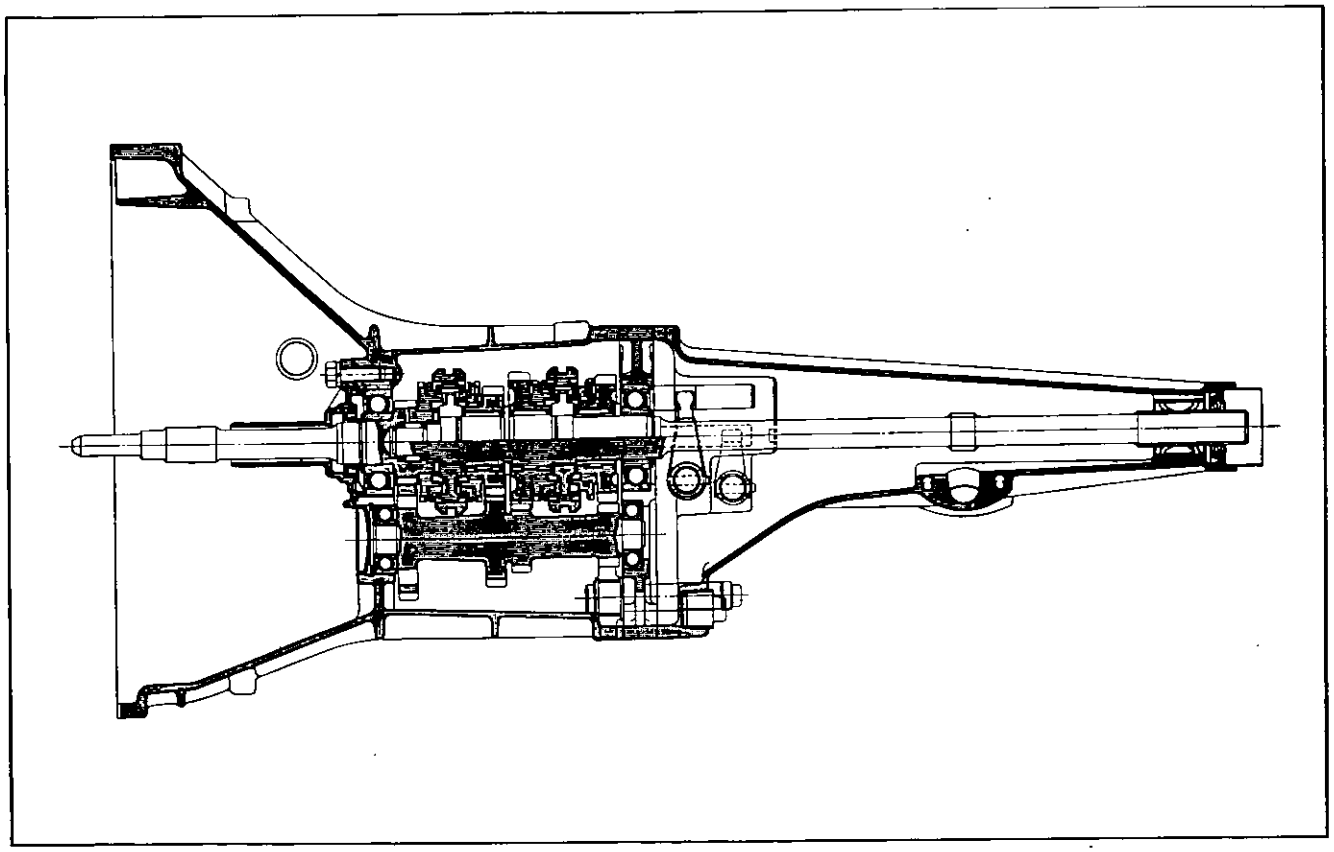


Fig. TM-61 R3W56 transmission

Disassembly and maintenance service for the three speed transmission are to be conducted in the manner identical to the four speed transmission.

Except for the following items, the three speed transmission is same as the four speed transmission:

INSPECTION

Gear end play mm (in)

Reverse gear	0.05 to 0.20 (0.0020 to 0.0079)
Reverse gear (counter shaft)	0.05 to 0.15 (0.0020 to 0.0059)
Reverse gear (main shaft)	0.10 to 0.25 (0.0039 to 0.0098)

SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

Type	R3W56	F4W56
No. of speeds	3-forward, 1-reverse	4-forward, 1-reverse
Synchromesh type	Warner type	Warner type
Gear ratio		
1st	3.380	3.757
2nd	1.734	2.169
3rd	1.000	1.404
4th	–	1.000
Rev.	3.640	3.640
Speedometer pinion	17/5	17/5
Oil capacity	1.2 ℓ (0.3 US gal)	1.2 ℓ (0.3 US gal)

TIGHTENING TORQUE

Transmission proper	kg-m (ft-lb)
Engine / transmission intallation bolt:	1.6 to 2.2 (11.6 to 15.9)
Engine mount rear installation bolt (to the body):	3.2 to 4.0 (23.1 to 28.9)
Speedometer pinion installation bolt:	0.5 to 1.1 (3.6 to 8.0)
Front cover installation bolt:	1.0 to 1.6 (7.2 to 11.6)

Rear extension installation bolt:	1.6 to 2.2 (11.6 to 15.9)
Drain plug:	4.0 to 6.0 (28.9 to 43.4)
Filler plug:	4.0 to 6.0 (28.9 to 43.4)
Backup lamp switch installation:	2.0 to 2.5 (14.5 to 18.1)
Withdrawal lever ball pin installation:	3.1 to 4.2 (22.4 to 30.4)

Item \ Model	R3W56	F4W56
Each gear standard backlash (For all gears) mm (in)	0.08 to 0.15 (0.0031 to 0.0059)	〃
Each gear standard end play		
1st gear mm (in)	0.15 to 0.25 (0.0059 to 0.0098)	〃
2nd gear mm (in)	0.15 to 0.25 (0.0059 to 0.0098)	〃
3rd gear mm (in)	—	0.15 to 0.35 (0.0059 to 0.0138)
Reverse gear mm (in)	0.05 to 0.20 (0.0020 to 0.0079)	—
Reverse (counter) gear mm (in)	0.05 to 0.15 (0.0020 to 0.0059)	—
Reverse (main) gear mm (in)	0.10 to 0.25 (0.0039 to 0.0098)	—
Baulk ring/cone clearance		
Standard clearance mm (in)	1.05 to 1.4 (0.0413 to 0.0551)	〃
Replacement standard mm (in)	0.5 (0.0197)	〃
Counter shaft		
Adjusting shim		

Part number	Thickness mm (in)
32224-18001	0.8 (0.0315)
32224-18002	0.9 (0.0354)
32224-18003	1.0 (0.0394)
32224-18004	1.1 (0.0433)
32224-18005	1.2 (0.0472)
32224-18006	1.3 (0.0512)

Front cover Adjusting shim	

Part number	Thickness mm (in)
32208-18000	0.5 (0.0197)
32208-18001	0.2 (0.0079)
32208-18002	0.1 (0.0039)

TROUBLE DIAGNOSES AND CORRECTIONS

Symptom and possible cause	Corrective action
Difficult to intermesh gears Causes for difficult gear shifting are classified to troubles concerning the control system and transmission. When the gear shift lever is heavy and it is difficult to shift gears, clutch disengagement may also be unsmooth. First, make sure that the clutch operates correctly, and inspect the transmission.	
Worn gears, shaft, and/or bearing	Replace.
Insufficient operating stroke due to worn or loose sliding part	Repair or replace.
Defective or damaged synchronizer	Replace.
Gear slips out of mesh In the most cases, this trouble occurs when the interlock plunger, check ball, and/or spring is worn or weakened, or when the control system is defective. In this case, the trouble cannot be corrected by replacing gears, and therefore, trouble shooting must be carried out carefully. It should also be noted that gear slips out of mesh due to vibration generated by weakened front and rear engine mounts.	
Worn interlock plunger	Replace.
Worn check ball and/or weakened or broken spring	Replace.
Worn fork rod ball groove	Replace.
Worn or damaged bearing	Replace.
Worn or damaged gear	Replace.
Noise When noise occurs under engine idling and stops while the clutch is disengaged, or when noise occurs while shifting gears, it may judged that the noise is from the transmission.	

Insufficient or improper lubricant	Add oil or replace with designated oil.
Oil leaking due to defective oil seal and gasket, clogged breather, etc.	Clean or replace.
Worn bearing (High humming occurs at a high speed.)	Replace.
Damaged bearing (Cyclic knocking sound occurs also at a low speed.)	Replace.
Worn each spline	Replace.
Worn each bushing	Replace.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION PD

PROPELLER SHAFT & DIFFERENTIAL CARRIER

PD

PROPELLER SHAFT AND UNIVERSAL JOINT ..... PD- 1

DIFFERENTIAL CARRIER- ..... PD- 4

PROPELLER SHAFT AND UNIVERSAL JOINT

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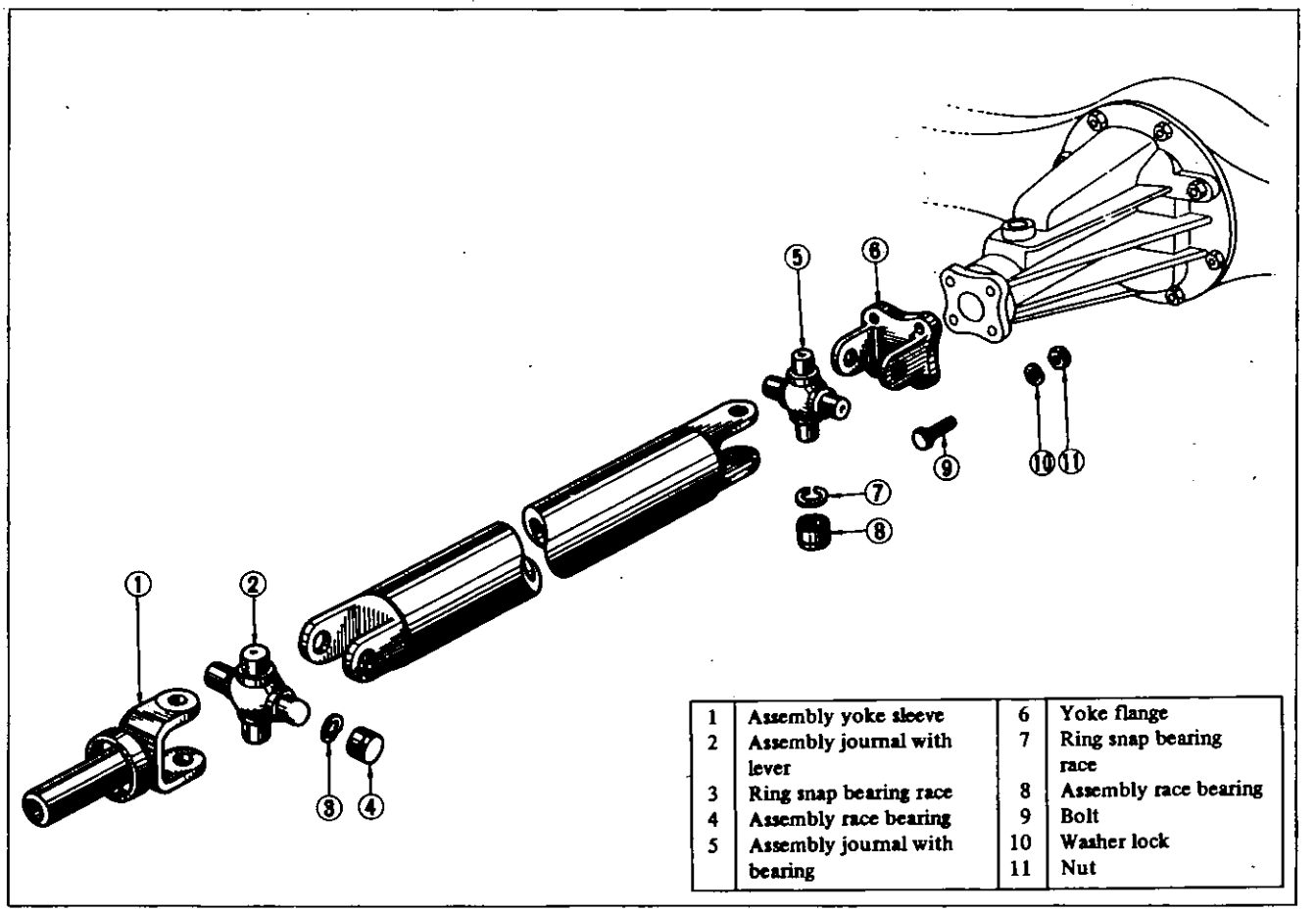
DISASSEMBLY PD-2
INSPECTION PD-2
ASSEMBLY PD-2
SERVICE DATA AND SPECIFICATIONS PD-3
TROUBLE DIAGNOSES AND CORRECTIONS PD-3



1	Assembly yoke sleeve	6	Yoke flange
2	Assembly journal with lever	7	Ring snap bearing race
3	Ring snap bearing race	8	Assembly race bearing
4	Assembly race bearing	9	Bolt
5	Assembly journal with bearing	10	Washer lock
		11	Nut

Fig. PD-1 Propeller shaft

DESCRIPTION

Propeller shaft adopt solid tubular steel construction.

A correct balance of propeller shaft is very important for a good riding comfort at high speed. Therefore, the propeller shafts in service parts and ones assembled in the vehicle are counterbalanced within an unbalance of 15 gr-cm (0.2 in-oz) at 4,000 rpm at the factory with the best care.

The propeller shaft will be unbalanced if erroneously tapped it with a hammer while servicing, or flying rocks or bottoming during off-road driving occurs.

Moreover excessive sleeve yoke spline-to-transmission main spline lash and wear of both front and rear universal joints will cause vibrations, affecting riding comfort.

REMOVAL

Disconnect the flange yoke and the pinion flange by removing bolts at the rear end of the propeller shaft.

In this case, draw out the sleeve yoke from the end of transmission, holding the disconnected rear end of the propeller shaft.

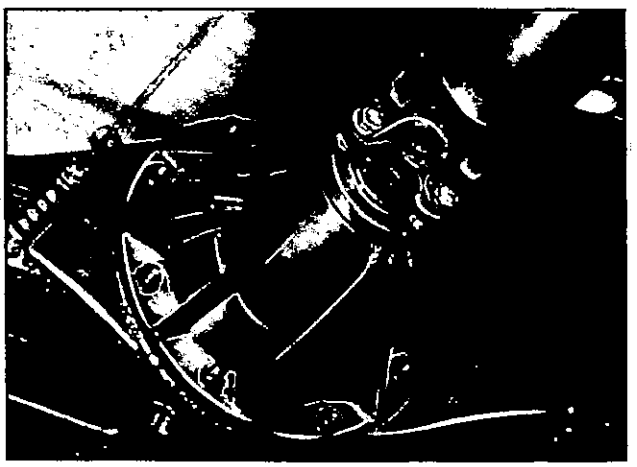


Fig. PD-2

Before disassembling, put match mark on all components of shaft so that they are reassembled in the former position and that the propeller shaft balance will not be deviated.

DISASSEMBLY

Primarily, do not disassemble the propeller shaft since it has been balanced as an assembly.

When disassembly is unavoidable for necessary repair, the following instructions apply:

1. Remove snap rings from the yoke and raise the propeller shaft.

2. Remove snap rings (used to secure the journal bearings in the yoke flange) with a pair of pliers.

If the snap rings, cannot be snapped out of the groove, tap the end of the bearing with a wooden mallet slightly. This will relieve the pressure from the snap ring.

3. Slightly remove the journal bearing end until the opposite bearing is pushed out of the yoke flange. Turn over and secure the assembly in a vise. Drive the first spider bearing back out of its lug by tapping the projected end of the spider.

4. Use a brass drift with a flat face.

5. Wash and clean the bearing and shaft with cleaning solvent.

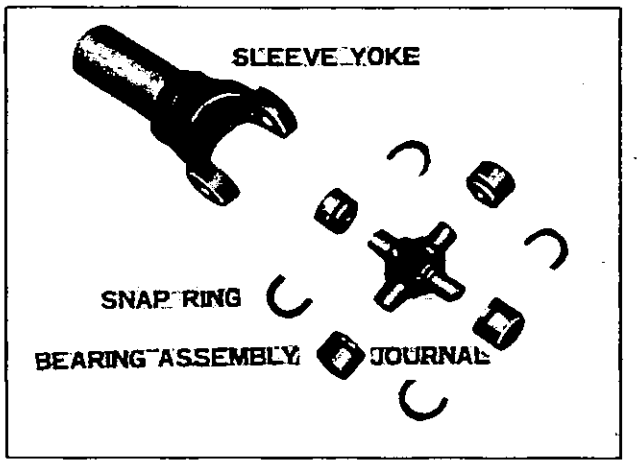


Fig. PD-3

INSPECTION

Check all parts, and repair or replace if defective. When replacing the journal unit, be sure to replace as an assembly.

1. Replace, if the journal pin exterior is damaged or scarred.

2. Replace, if the yoke hole is worn or damaged.

3. Replace, if the snap ring is damaged or deformed.

4. Replace, if the bearing needle roller is damaged or worn.

5. Replace both sleeve yoke and main shaft if the sleeve yoke and main shaft spline are damaged or worn.

6. Replace, if the propeller shaft tube surface is cracked or indented.

ASSEMBLY

The propeller shaft is reassembled in reverse sequence of disassembly.

Install the spider on the yoke flange.

Insert the journal into the yoke flange. Tap the journal bearing into the yoke flange, using a brass drift smaller than the hole in the yoke. Tap the other bearing into the opposite end of the yoke flange until the bearing is in line with the snap ring grooves.

With a pair of pliers, install the snap rings on both ends of the yoke flange.

Insert the flange assembly in the sleeve yoke.

Place the other yoke bearing into the opposite end of the yoke, and tap this bearing into the yoke until the bearing is in line with the snap ring grooves. Install the snap rings on both ends of the yoke. When all parts are assembled check the spider and surroundings for tightness.

When the clearance is excessive, adjust with over size snap rings as follows:

Snap ring (over size)		
Part number	Thickness mm (in)	Color identification
37146 18000	1.46 (0.0575)	White
37147 18000	1.48 (0.0583)	Yellow
37148 18000	1.50 (0.0591)	Red
37149 18000	1.52 (0.0598)	Green
37150 18000	1.54 (0.0606)	Blue
37151 18000	1.56 (0.0614)	Brown
37152 18000	1.58 (0.0622)	

SERVICE DATA AND SPECIFICATIONS

Distance between joints mm (in)	1,189 (46.8)
Tube outer diameter x thickness mm (in)	68.9 x 1.6 (2.713 x 0.0630)
Sleeve yoke specification	Involute spline
Outer dia. x inner dia. x pitch mm (in)	20 x 80 x 1 (0.787 x 3.150 x 0.0394)
Permissible unbalance gr-cm/rpm	15/4,000

Check the joint every 20,000 km (12,000 miles).

If an abnormal bending (a play or noise occurs) is seen, replace the journal and bearing race and adjust with snap ring.

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Noise and vibration	Distorted propeller shaft	Using exclusively an arbor press restraighten. If distortion is excessive, replace propeller shaft.
	Unbalanced propeller shaft	Check for balance. If unbalance exceeds the limit, replace it.
	Incorrectly positioned flange yoke.	Recorrect.
	Excessive spline lash.	Replace the sleeve yoke.
	Worn or damaged journal	Replace the journal.
	Incorrect snap rings	Replace with correct snap ring.
	Loose nuts securing the flange yoke to the companion flange.	Retighten nuts to the specified torque.

DIFFERENTIAL CARRIER -

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SERVICE DATA AND SPECIFICATIONS PD-17

DESCRIPTION

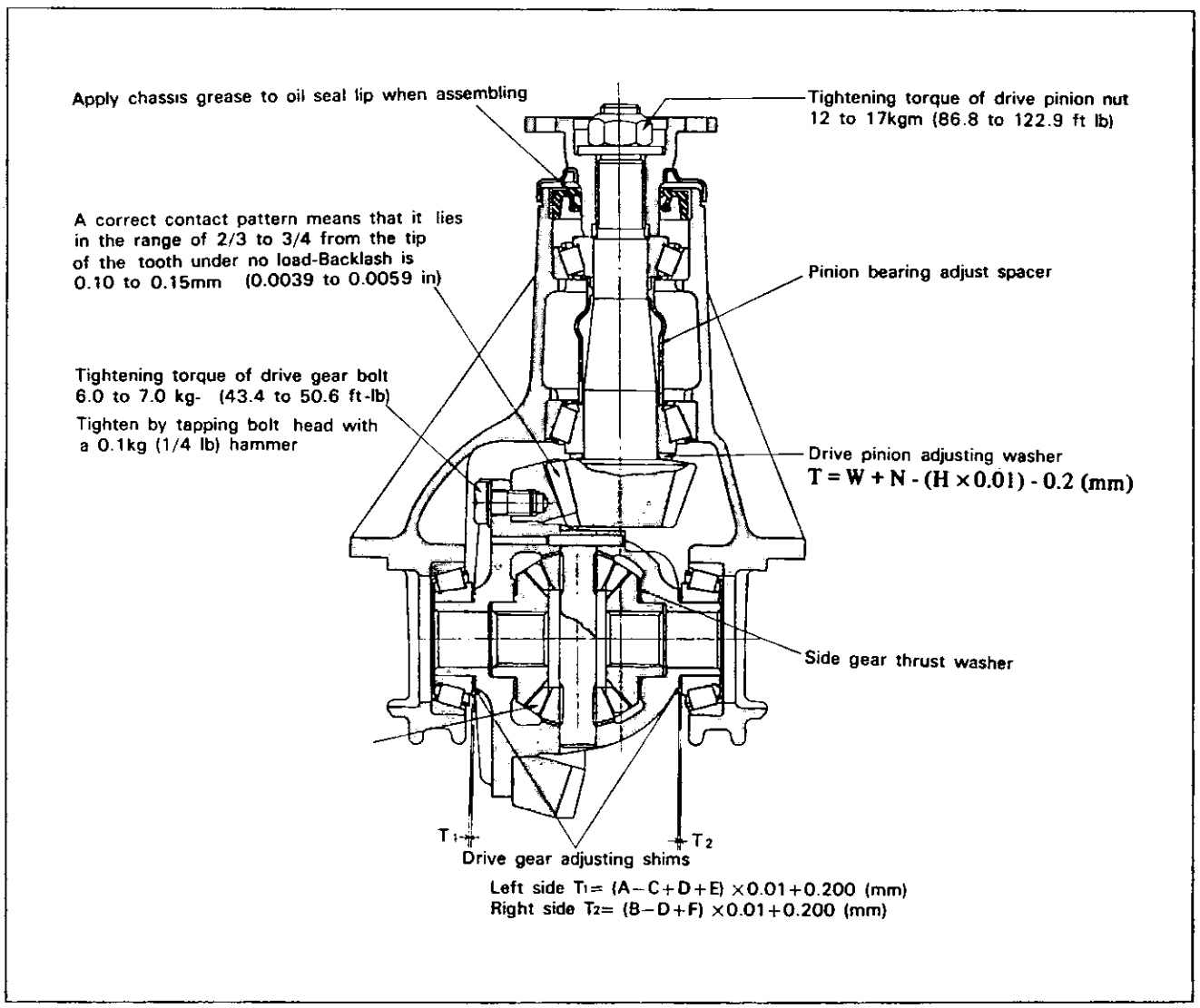

Apply chassis grease to oil seal lip when assembling
Tightening torque of drive pinion nut
12 to 17kgm (86.8 to 122.9 ft lb)
A correct contact pattern means that it lies in the range of 2/3 to 3/4 from the tip of the tooth under no load-Backlash is 0.10 to 0.15mm (0.0039 to 0.0059 in)
Pinion bearing adjust spacer
Tightening torque of drive gear bolt
6.0 to 7.0 kg- (43.4 to 50.6 ft-lb)
Tighten by tapping bolt head with a 0.1kg (1/4 lb) hammer
Drive pinion adjusting washer
T = W + N - (H × 0.01) - 0.2 (mm)
Side gear thrust washer
T1
T2
Drive gear adjusting shims
Left side T1= (A−C+D+E) ×0.01+0.200 (mm)
Right side T2= (B−D+F) ×0.01+0.200 (mm)

Fig. PD-4 Sectional view of differential carrier

The gear carrier is made of light and strong aluminum alloy metal and hypoid bevel gear is used.

Adjust drive pinion bearing preload with non-adjusting type spacer, and pinion height and side bearing adjustment with spacer shim(s).

Millimeter standardization still remains for all the screw threads of this unit. Therefore, adjustment figures stamped on screws, adjusting shims, washers, differential case, drive pinion and carrier are in millimeters in accordance with the millimeter standardization of parts.

The proper lubrication to the gear housing is necessary, otherwise it would shorten the durability of the gear and cause other troubles. The lubricant should be checked each 5,000 km (3,000 miles) and replenished each 50,000 km (30,000 miles).

The lubricant should be drained and refilled at the end of the first 1,000 km (600 miles) to eliminate any loose material from the sump which results from "breaking". Differential lubricant should be changed at least every 50,000 km (30,000 miles).

Considerations should be given to the following matters:

1. Nominated hypoid gear oil must be used.

2. It is prohibited to use any gear oil of different viscosity.

The same brand must always be selected.

3. The standard oil capacity is about 0.75 liter (0.198 US gal).

REMOVAL

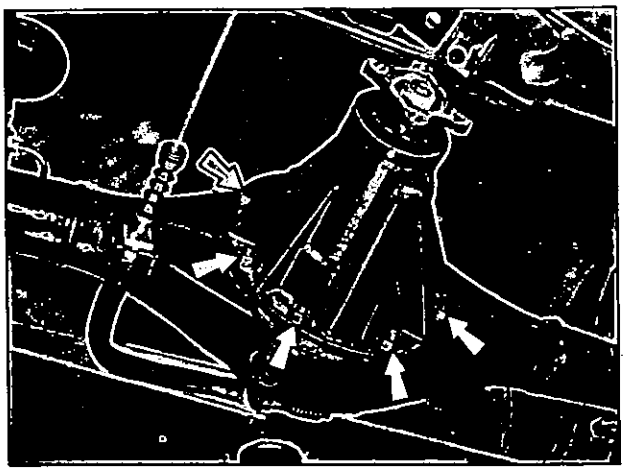


Fig. PD-5 Differential carrier assembly

To remove the gear carrier assembly, disconnect the drive pinion companion flange-to-flange yoke connection and remove two rear axle shafts. Refer to "REAR AXLE" for the work.

DISASSEMBLY

1. Install the gear carrier assembly on the Gear Carrier Attachment (ST06220000 by engine stand, ST06280000 by vise).

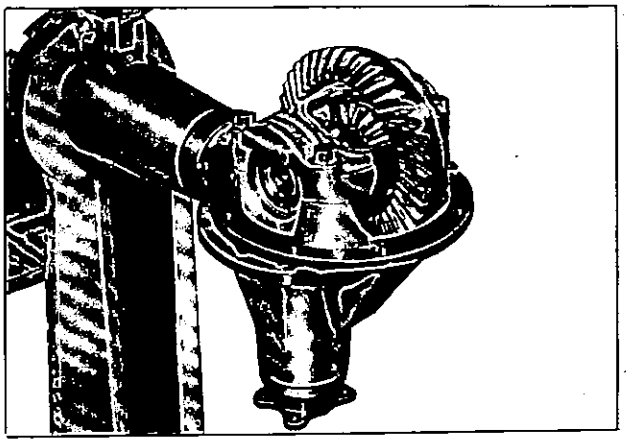


Fig. PD-6 Holding differential carrier

2. Inspect the following before disassembling.

(1) Inspect the tooth contact pattern with a lead oxide.

(2) Measure backlash between drive gear and pinion gear using a dial indicator.

3. Put match mark on one side of the side bearing cap by the use of a punch.

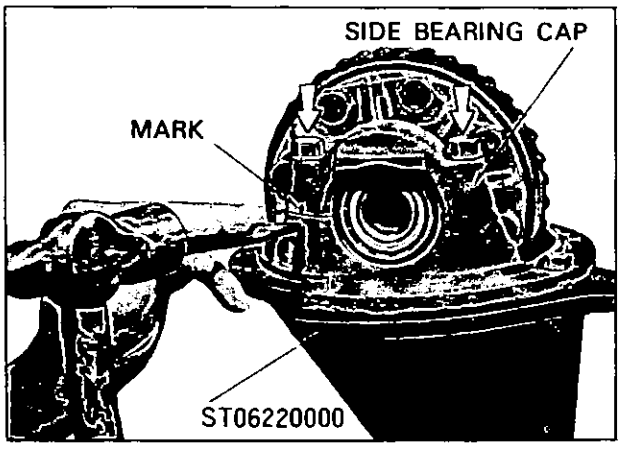


Fig. PD-7 Putting mark

4. Remove the side bearing caps and take out the differential case assembly.

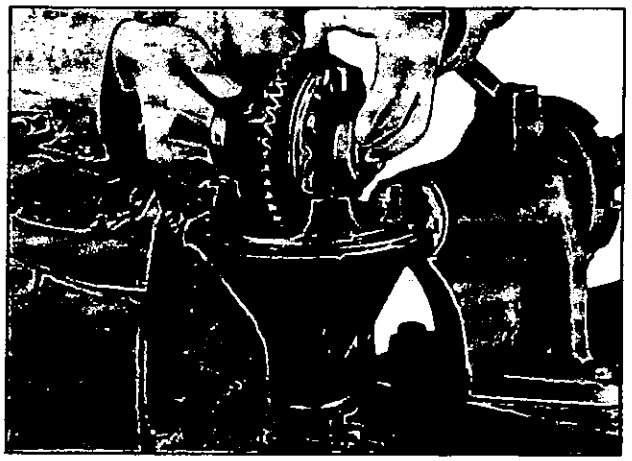


Fig. PD-8 Removing differential case assembly

Note: Be careful not to confuse the right and left hand bearing caps and bearing outer race so that the same parts are reassembled in the original positions.

5. Remove the side bearing by the use of a Gear Carrier Side Bearing Puller (ST33010000).

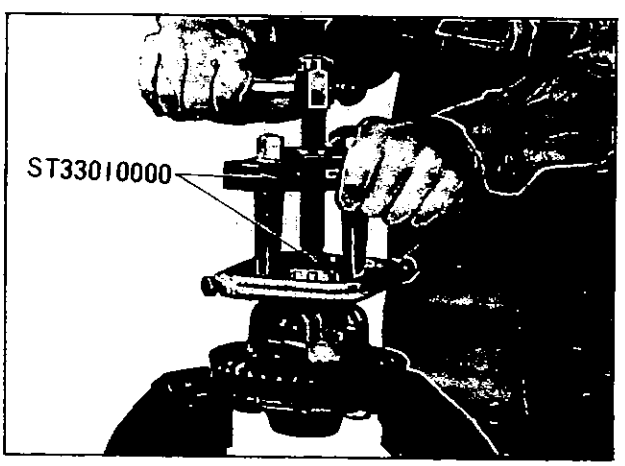


Fig. PD-9 Removing side bearing

Note: a. The puller should be handled with care in catching the edge of bearing inner race.

b. Care should be taken not to confuse the right and left hand parts.

6. Remove the hypoid gear by spreading out the lock strap and loosening the drive gear bolts.

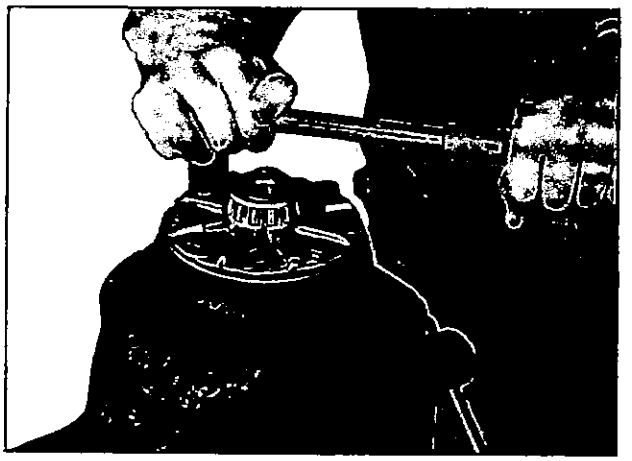


Fig. PD-10 Removing drive gear

Note: Loosen the bolts in a diagonal line.

7. Measure backlash between the side gear and the pinion mate using a dial indicator.

8. Drive out the pinion shaft lock pin from the left side (from the side of the drive gear) to the right side by using the Fork Rod Pin Punch (ST23520000).

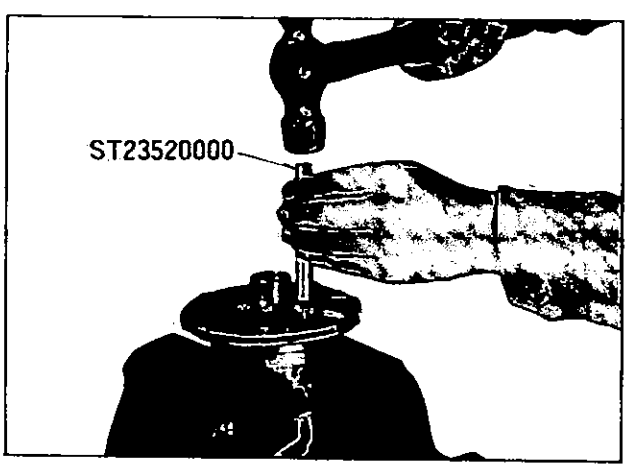


Fig. PD-11 Removing lock pin

9. Draw out the pinion shaft and take out the mate pinions, side gears and thrust washers.

Note: The gears as well as thrust washers should be marked or preserved separately as left and right, front and rear.

10. Measure the initial turning torque drive pinion gear by using the Preload Gauge (ST31190000) and drive pinion height by using the Drive Pinion Arrangement Gauge (ST31120000).

11. Remove the drive pinion nut and draw out the companion flange assembly.

Note: Use the Drive Pinion Flange Wrench to hold the companion flange (ST31540000).

Fig. PD-12 Removing drive pinion unit

12. Remove the drive pinion assembly to the rearward by tapping the front end with a plastic mallet.

The drive pinion can be taken out together with the inner race of rear bearing, bearing spacer and adjusting washer.

13. Remove the oil seal and take out the front bearing inner race.

Note: The removed oil seal should not be reused.

14. Draw out the outer races of both front and rear bearings using drift.

15. Draw out drive pinion rear bearing inner race using Drive Pinion Rear Inner Race Replacer (ST30031000).

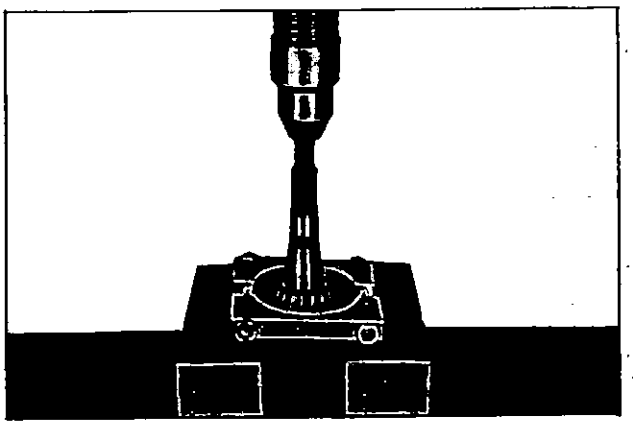
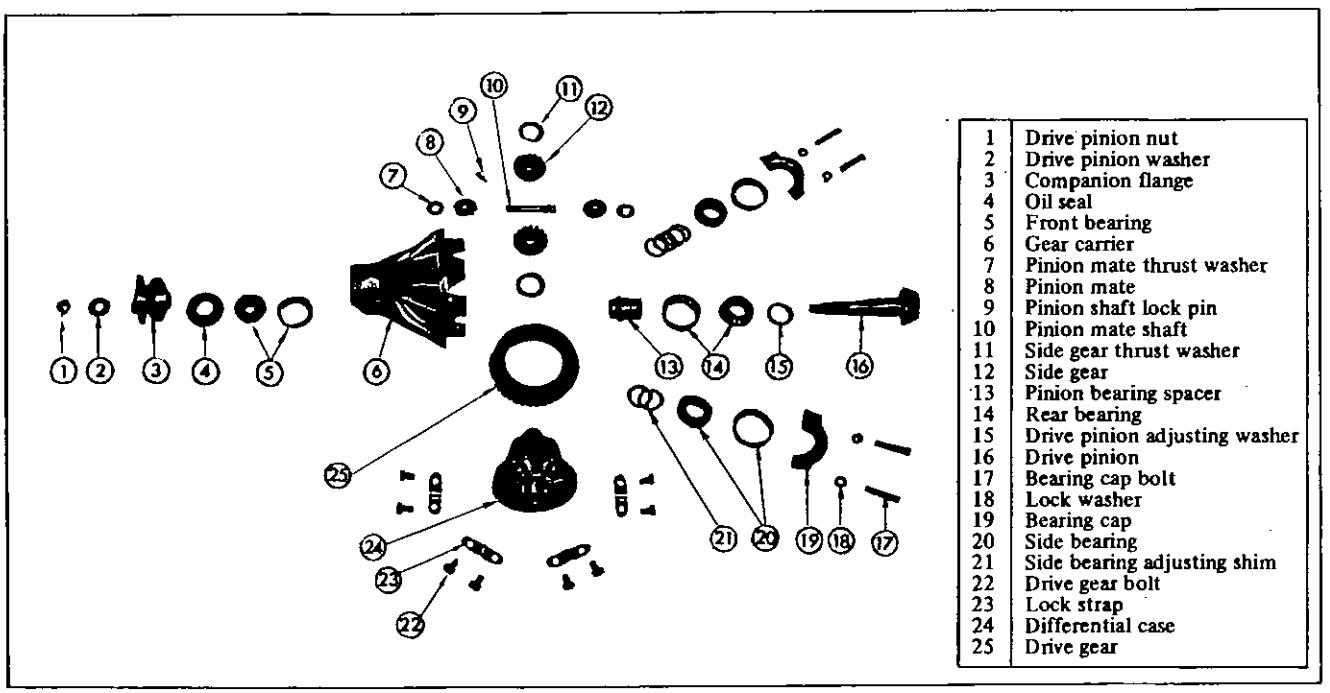


Fig. PD-13 Removing bearing

INSPECTION AND REPAIR



1	Drive pinion nut
2	Drive pinion washer
3	Companion flange
4	Oil seal
5	Front bearing
6	Gear carrier
7	Pinion mate thrust washer
8	Pinion mate
9	Pinion shaft lock pin
10	Pinion mate shaft
11	Side gear thrust washer
12	Side gear
13	Pinion bearing spacer
14	Rear bearing
15	Drive pinion adjusting washer
16	Drive pinion
17	Bearing cap bolt
18	Lock washer
19	Bearing cap
20	Side bearing
21	Side bearing adjusting shim
22	Drive gear bolt
23	Lock strap
24	Differential case
25	Drive gear

Fig. PD-14 Gear carrier and gear

Before inspecting various parts, thoroughly wash them so that damage and wear can be easily detected.

Then proceed as follows.

1. Check gear teeth for scoring, cracking and chipping, and make sure that tooth pattern indicates correct meshing depth.

If any defect is evident, replace parts as required.

Note: Drive pinion and drive gear are supplied for replacement as a set, therefore, should either part be damaged, replace as a set.

2. Check the pinion gear shaft and pinion gear mating faces for scoring and signs of wear, and replace as required.

Follow the same procedure for inner faces of side gear and their seats on differential case.

3. Inspect all bearing races and rollers for scoring, chipping or evidence of excessive wear.

They should be in tiptop condition (not worn with mirror-like surfaces).

Replace if there is a doubt on their efficiency, since an incorrect bearing operation may result in noisiness and gear seizure.

4. Inspect thrust washer faces

Small defects can be corrected with emery paper. In case of the clearance between the side gear and thrust washer exceeds 0.1 to 0.2 mm (0.0039 to 0.0079 in), replace the thrust washers. Three kinds of thrust washers are available.

5. Measure run-out of the drive gear at the rear side using a dial indicator.

When the run-out is more 0.05 mm (0.0020 in), replace the drive gear and pinion gear as a set.

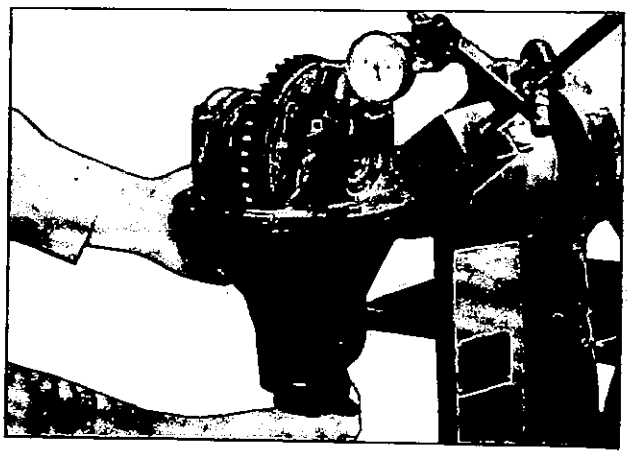


Fig. PD-15 Measuring run-out of drive gear

6. Inspect carrier and differential case for cracks or distortion.

Replace defective parts, as required.

ASSEMBLY AND ADJUSTMENT

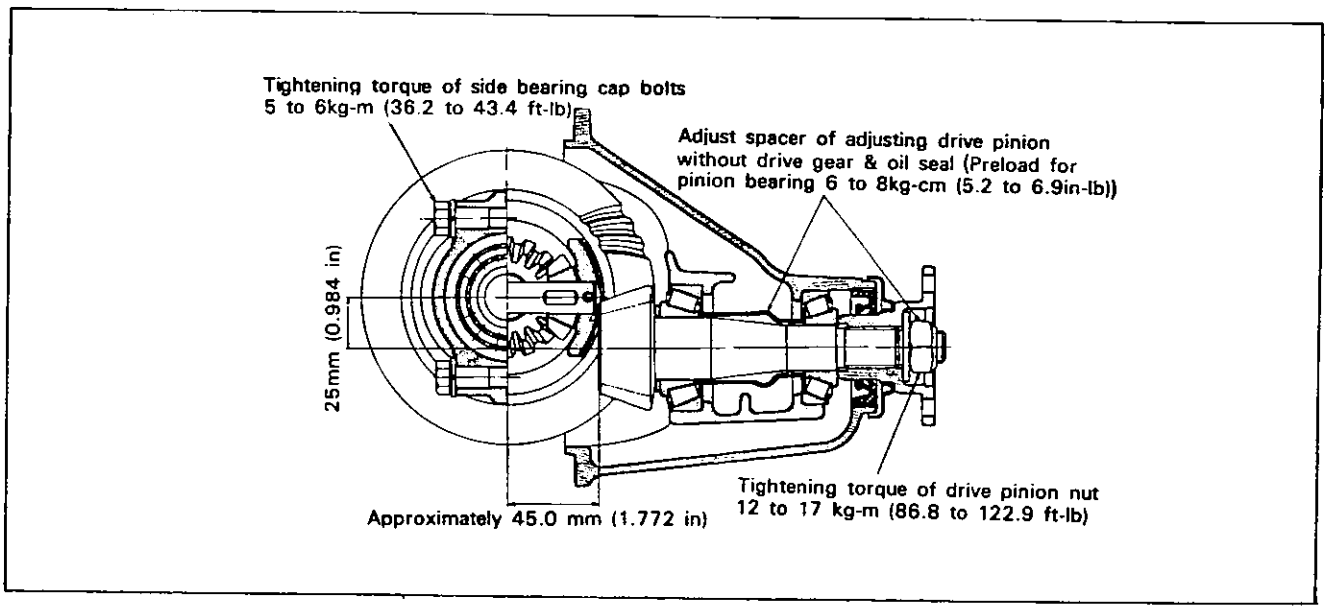

Tightening torque of side bearing cap bolts
5 to 6kg-m (36.2 to 43.4 ft-lb)
Adjust spacer of adjusting drive pinion without drive gear & oil seal (Preload for pinion bearing 6 to 8kg-cm (5.2 to 6.9in-lb))
25mm (0.984 in)
Approximately 45.0 mm (1.772 in)
Tightening torque of drive pinion nut
12 to 17 kg-m (86.8 to 122.9 ft-lb)

Fig. PD-16 Carrier section

Reassemble the differential carrier in reverse order of disassembly. The following instructions for adjustment and usage of special tools are essential to obtain perfect differential operation.

Assembling differential gear case

1. Assemble the pinion mate, side gear and thrust washer in the differential case.

2. Adjust clearance between the side gear and thrust washer within 0.01 to 0.20 mm (0.0039 to 0.0079 in) by selecting side gear thrust washer.

Fig. PD-17 Measuring clearance

Side gear thrust washers	
Part number	Thickness mm (in)
38424 18000	0.76 to 0.81 (0.0299 to 0.0139)
38424 18001	0.81 to 0.86 (0.0319 to 0.0339)
38424 18002	0.86 to 0.91 (0.0339 to 0.0358)

3. Fit the pinion lock pin from the right side of the case (opposite side of drive gear) and peen the hole rim over to prevent the lock pin vibration loose.

4. Bolt the drive gear to differential case.

Only genuine drive gear bolts and new lock bolt straps should be used.

Tighten the bolts by striking lightly the head of the bolt by a 0.1 kg (1/4 lb) hammer.

The drive gear bolts should be tightened in a diagonal line. The tightening torque should be 6.0 to 7.0 kg-m (43.4 to 50.6 ft-lb).

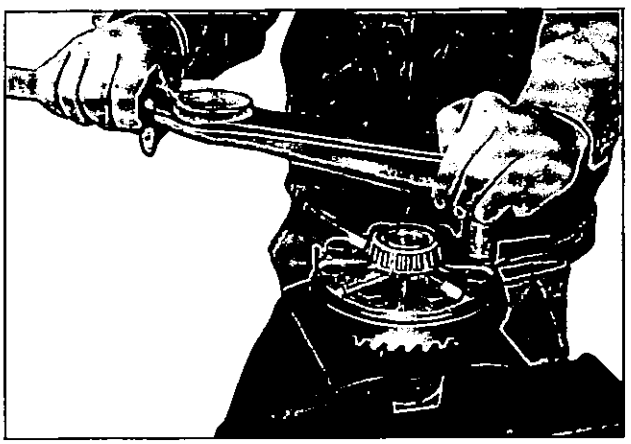


Fig. PD-18 Measuring tightening torque

5. Press the side bearing inner race on the differential case using a Side Bearing Drift (ST33220000).

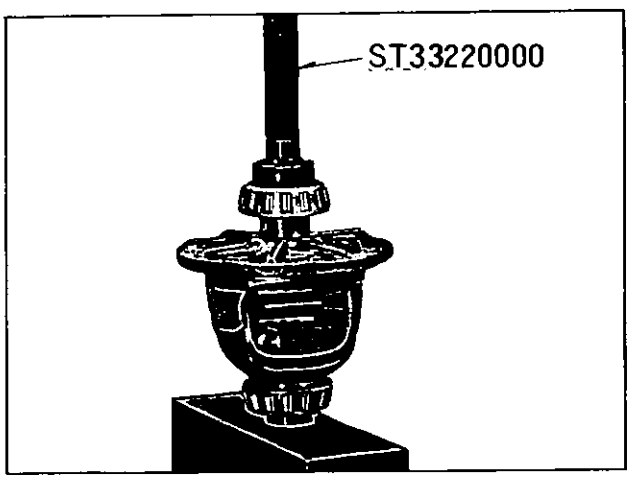


Fig. PD-19 Pressing the side bearing inner race

Note: It is important to fit the drive gear adjusting shims behind the bearings to obtain proper preload and mounting of gear teeth.
The procedure for adjustment is described in fourthcoming page in detail, and therefore, no instruction is given here.

Setting and adjusting drive pinion

Pinion height is adjusted with pinion adjusting washer behind the drive pinion gear.

Tolerance from the standard size up to the drive gear center is indicated on the drive pinion top by means of an electric pen. When tolerance is larger than the standard size, it is accompanied with ⊕ mark, and with ⊖ mark when smaller. The numeral following the mark is a figure multiplied by 100.

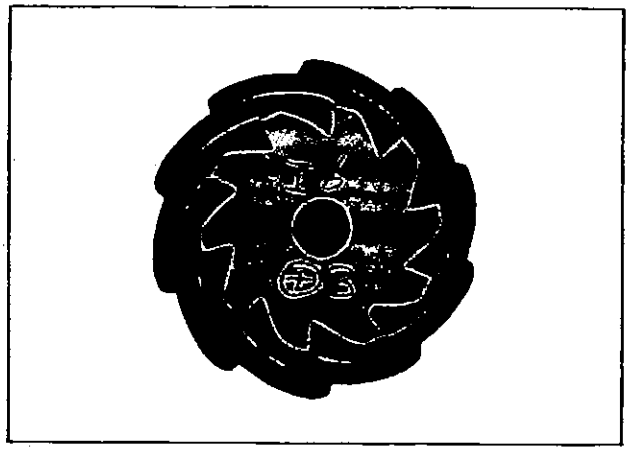


Fig. PD-20 Drive pinion head mark

1. Install the drive pinion outer races (both front and rear) on the final drive housing.

2. Install the drive pinion adjusting washer and rear bearing on the Dummy Shaft (ST31230000)

3. Install the Dummy Shaft on the final drive housing without using drive pinion adjusting spacer, and install the pinion front bearing and companion flange.

4. Tighten the drive pinion lock nut to the rated preload by the use of a Drive Pinion Flange Wrench (ST31540000).

Drive pinion bearing preload:

(without oil seal and new bearing)
6 to 8 kg-cm (5.2 to 6.9 in-lb)

(without oil seal and reused bearing)
3 to 4 kg-cm (2.6 to 3.5 in-lb)

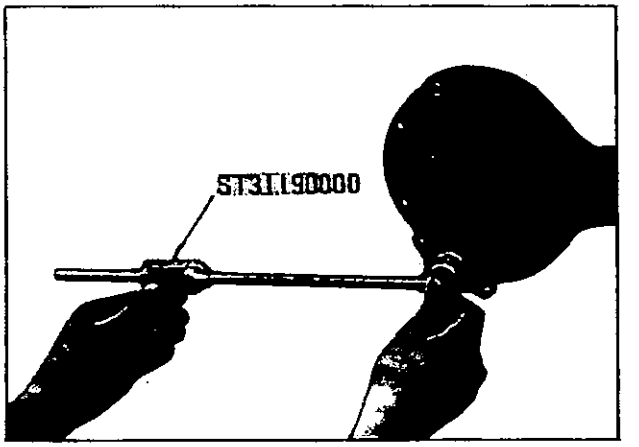


Fig. PD-21 Measuring pinion preload

Note: Be careful not to tighten excessively, or otherwise the bearing will be damaged since pinion bearing adjusting spacer has not been applied.

5. Install a Drive Pinion Arrangment Gauge (ST31120000) on the final drive housing, and measure gap with a thickness gauge.

Fig. PD-22 Measuring pinion gear depth

6. Formula to calculate thickness of drive pinion adjusting washer

$$T = W + N - (H \times 0.01) - 0.2 \quad (mm)$$

Where W = Thickness of washer inserted (mm)
T = Required thickness of rear bearing adjusting shim (mm).
N = Measured clearance between Arrangement Gauge and Dummy Shaft face (mm).
H = Figure marked on the drive pinion head.

Example W = 2.92 mm
N = 0.3 mm
H = -1
T = 2.92 + 0.3 - (-1 x 0.01) - 0.2
= 3.03 mm

Use a 3.04 mm washer.

7. Remove the Dummy Shaft from the gear carrier housing.

8. Withdraw the pinion rear bearing from the Dummy Shaft, apply a washer selected based on the above formula, and refit the pinion rear bearing and drive pinion together.

Note: Be sure to face inside (faced surface) of the washer toward back of the pinion gear.

Drive pinion adjusting washers

Part number	Thickness mm (in)	Part number	Thickness mm (in)
38154 G0400	2.74 (0.1079)	38154 G0409	3.01 (0.1185)
38154 G0401	2.77 (0.1091)	38154 G0410	3.04 (0.1197)
38154 G0402	2.80 (0.1102)	38154 G0411	3.07 (0.1209)
38154 G0403	2.83 (0.1114)	38154 G0412	3.10 (0.1220)
38154 G0404	2.86 (0.1126)	38154 G0413	3.13 (0.1232)
38154 G0405	2.89 (0.1138)	38154 G0414	3.16 (0.1244)
38154 G0406	2.92 (0.1150)	38154 G0415	3.19 (0.1256)
38154 G0407	2.95 (0.1161)	38154 G0416	3.22 (0.1268)
38154 G0408	2.98 (0.1173)	38154 G0417	3.25 (0.1280)

Adjusting preload

1. Fit oil seal to the final drive housing.

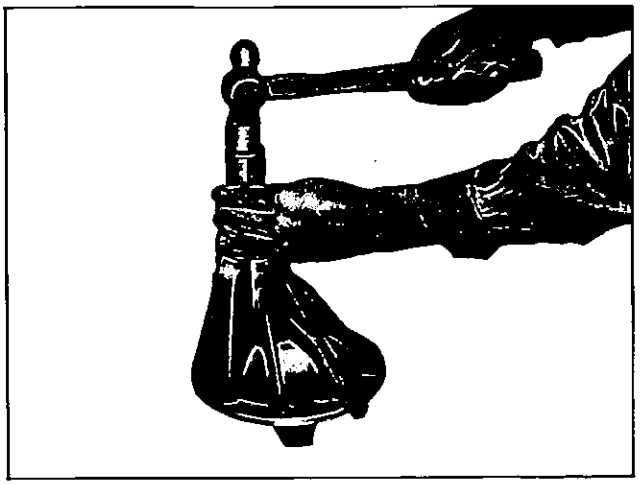


Fig. PD-23 Pressing the oil seal

Note: When installing the oil seal, be sure to grease the seal lip.

2. Install the drive pinion on which the rear bearing has been installed on the housing, install the non-adjusting type spacer, front bearing, and companion flange in that order, and install the pinion nut.

Note: Apply gear oil to the bearing, and make sure that the bearing operates smoothly.
Adjust the pinion bearing with the non-adjusting spacer.
As the pinion nut is tightened, stepped portion of the spacer is deformed, and thus, length between bearings is adjusted (stepless).

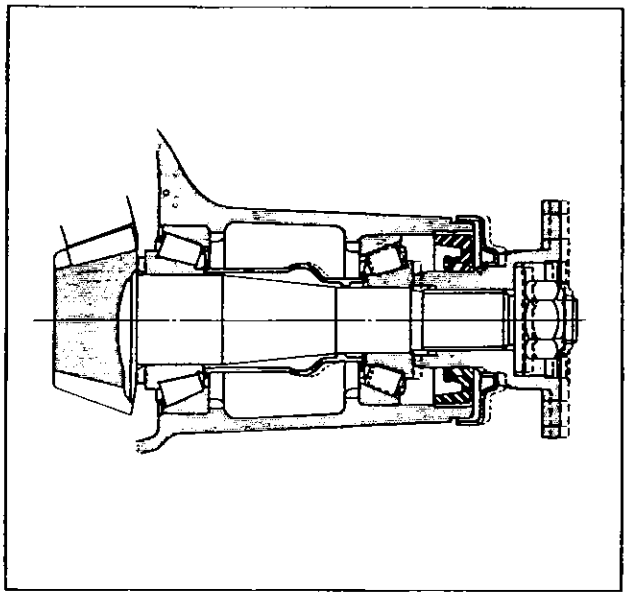


Fig. PD-24 Non-adjusting spacer

3. Tighten the drive pinion nut temporarily up to such an extent that slackness is eliminated from front and rear of the drive pinion.

Note: Be sure that oil and grease have been completely removed from threaded portion of the pinion gear, pinion nut, and washer.

4. Tighten the pinion nut by the use of a torque wrench and preload gauge. When tightening the pinion nut to the rated torque, measure preload whenever the pinion nut is turned 5 to 10 degrees so that pinion bearing rotation starting torque is the rated value.

Drive pinion bearing preload:

(with oil seal and new bearing)
7 to 9 kg-cm (6.1 to 7.8 in-lb)
(with oil seal and reused bearing)
4 to 5 kg-cm (3.5 to 4.3 in-lb)

Pinion nut tightening torque:
12 to 17 kg-m (86.8 to 122.9 ft-lb)

Note: Turn the drive pinion to provide the bearing with fitting, and reinspect preload and tightening torque.
Spacer should not be reused.
When preload exceeds the rated preload, do not adjust the preload by loosening the pinion nut. Replace with a new spacer.

Setting and adjusting side bearing shims

When reassembling the side bearing without replacing, be sure to install a shim having same thickness as that before disassembly.

The following instructions apply when the bearing is replaced.

1. Place an approximately 2.5 kg (5.5 lb) weight on the side bearing, and measure bearing thickness.

Standard side bearing width:
17.5 mm (0.689 in)

Note: With the weight placed on the side bearing, turn the bearing two to three turns, and measure thickness.

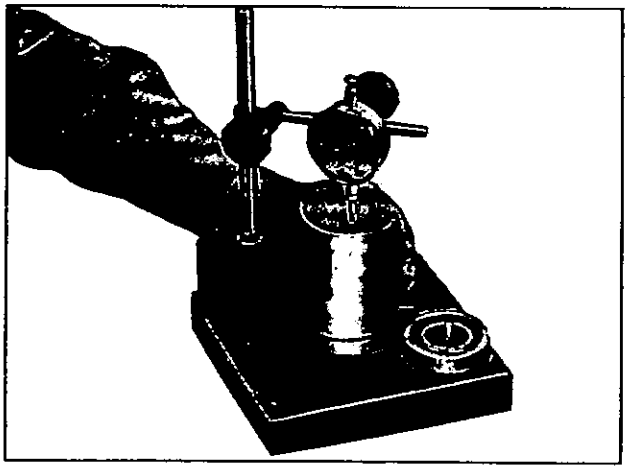


Fig. PD-25 Measuring for bearing

2. Side bearing adjusting shim thickness calculating formula

Left side (drive gear side)

$T_1 = (A - C + D + E) \times 0.01 + 0.200$ (mm)

Right side (pinion mate side)

$T_2 = (B - D + F) \times 0.01 + 0.200$ (mm)

Figures for A, B, C, and D are dimensional variations in a unit of 1/100 mm against each standard measurement.

Where A = The figure marked on the left side bearing housing of gear carrier.
B = The figure marked on the right side bearing housing of gear carrier.
C&D = The figure marked on the differential case.

E&F = These are differences in width of left or right side bearing against the standard width 17.5 mm (0.6890 in). Figure is given in a unit of 1/100 mm.

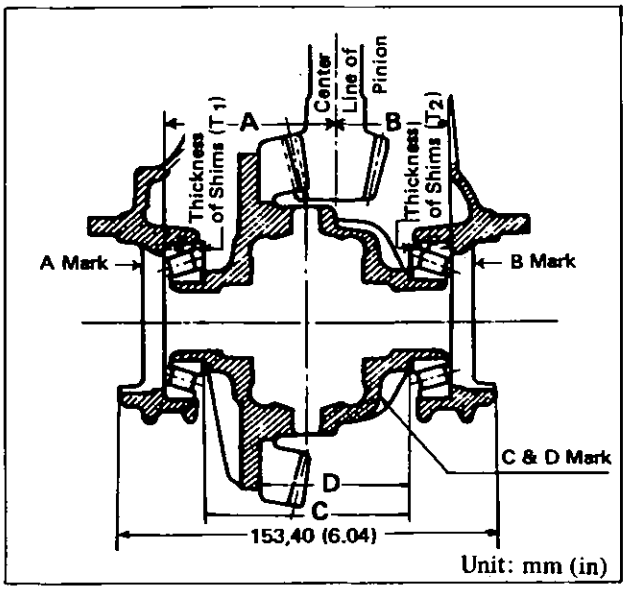


Fig. PD-26 Thickness of shim on left side
Thickness of shim on right side

Example of calculation

A = 1 B = 2 C = -1 D = 3
E = 8 F = 10

Left side

$T_1 = (1 + 1 + 3 + 8) \times 0.01 + 0.200 = 0.33$ mm

Right side

$T_2 = (2 - 3 + 10) \times 0.01 + 0.200 = 0.29$ mm

Apply a 0.33 mm shim and 0.29 mm shim respectively to the left and right, and fit the side bearing.

Side bearing adjusting shims	
Part number	Thickness mm (in)
38453 H1000	0.05 (0.0020)
38454 H1000	0.07 (0.0028)
38455 H1000	0.10 (0.0039)
38456 H1000	0.20 (0.0079)
38457 H1000	0.50 (0.0197)

Note: To measure the width of the side bearing, use the standard gauge (17.5 mm, 0.689 in) and dial indicator on a small surface plate.
Take the left side bearing, for example.
When the measured width is 17.3 mm (0.681 in), the difference is -0.2 mm (-0.0079 in) against the standard width and E is, excluding the minus sing, 20 (= 0.2 x 100).

3. Install the differential case assembly, together with the side bearing outer race, on the final drive housing.

Note: Be careful not to confuse the right and left sides of the side bearing housing.

4. Install the bearing cap, and tighten the installation bolt to the rated tightening torque.

Bearing cap tightening torque:

5 to 6 kg-m (36.2 to 43.4 ft-lb)

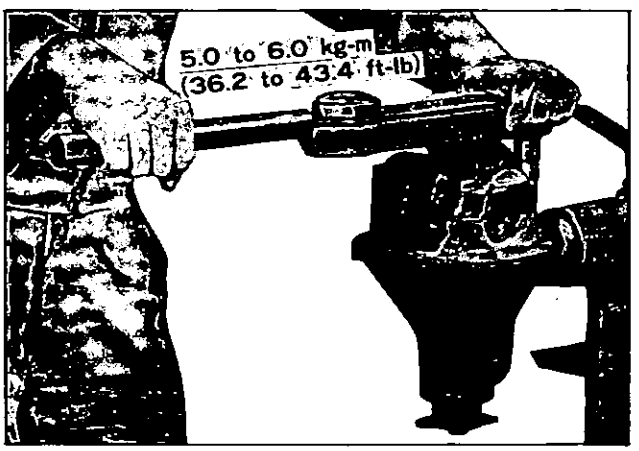


Fig. PD-27 Measuring tightening torque

Note: Be sure to align match mark put before disassembly correctly.

5. Upon completion of reassembly, measure drive pinion/drive gear backlash. When backlash is less than the rated value, move the side bearing adjusting shim from the left side (drive gear side) to the right side.

When backlash is more than the rated value, move the side bearing from the right to left contrarily.

Rated backlash: 0.10 to 0.15 mm
(0.0039 to 0.0059 in)

Fig. PD-28 Measuring backlash

6. Existence of foreign matter between the drive gear and differential case is considered when backlash fluctuates considerably. Measure drive gear back deflection.

Limit of deflection: Less than 0.05 mm (0.0020 in)
(Run-out of drive gear)

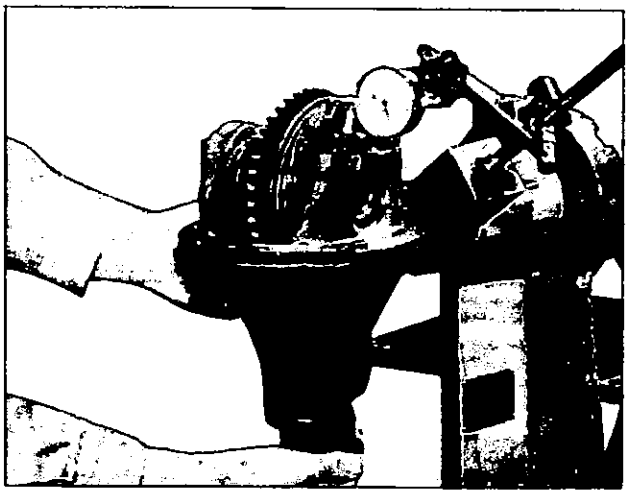


Fig. PD-29 Measuring run-out of drive gear

7. When run-out of drive gear is normal and fluctuation of backlash is considerable, replace the gear set. Before replacing the gear set, be sure to measure companion flange deflection. Fluctuation of backlash may be considerable due to deflection of pinion bearing.

Limit of deflection:

A portion: Less than 0.05 mm (0.0020 in)
B portion: Less than 0.05 mm (0.0020 in)

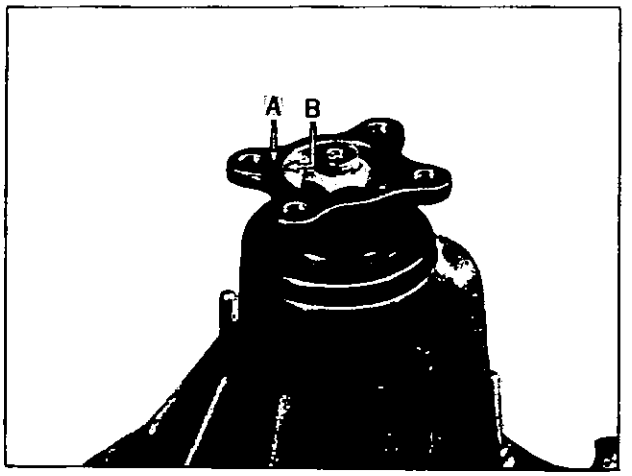


Fig. PD-30 Measuring place

8. Apply red lead (oily) to both surfaces of three to four teeth of the drive gear evenly, turn the gear several turns, and check the gear for tooth contact. When tooth contact is improper, readjust adjust shim in accordance with the following instructions.

a. Heel contact

Contact surface is insufficient, and heel may be damaged. Adjust by reducing thickness of shim in right side of the side bearing, and increase thickness of shim in left side.

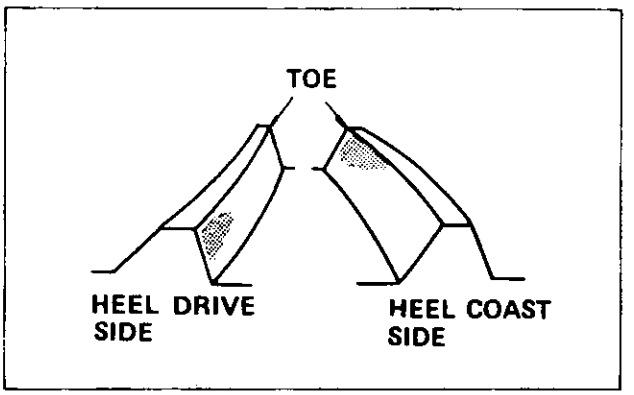


Fig. PD-31 Heel contact

b. Toe contact

Contact surface is insufficient, and toe may be damaged. Adjust by reducing thickness of shim in left side of the side bearing, and increase thickness of shim in right side.

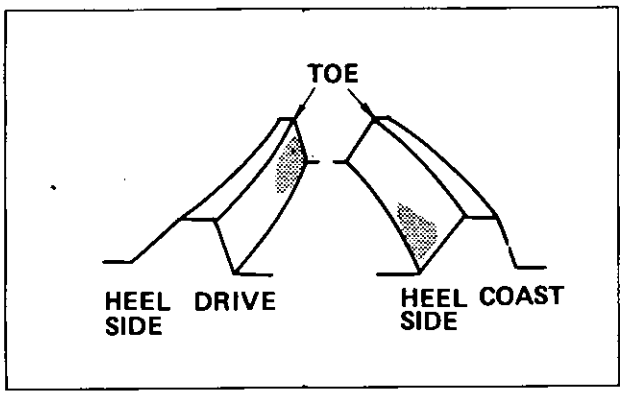


Fig. PD-32 Toe contact

c. Flank contact

When backlash is too tight, flank contact occurs. Noise increases, and tooth edge is easily worn in step. Replace the drive pinion adjusting washer with a thinner one so that drive pinion is moved away from drive gear.

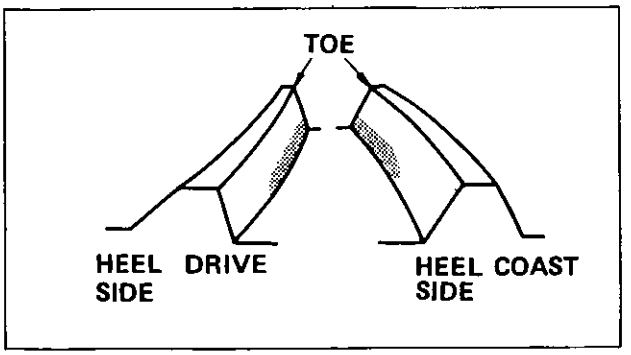


Fig. PD-33 Flank contact

d. Face contact

In the most cases, this trouble occurs when backlash is excessive. Noise increases and tooth edge is easily damaged. In order to obtain correct tooth contact, replace the drive pinion adjusting washer with a thicker one so that the drive pinion is moved to the drive gear.

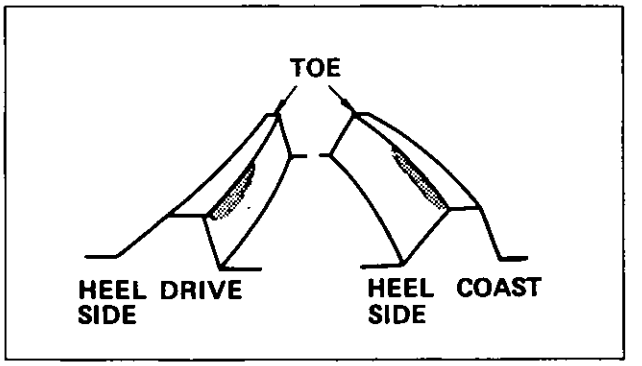


Fig. PD-34 Face contact

e. Correct contact

When proper tooth contact is obtained, wipe off red lead from gear face. A correct contact pattern means that it lies in the range of 2/3 to 3/4 from the tip of the tooth under no load.

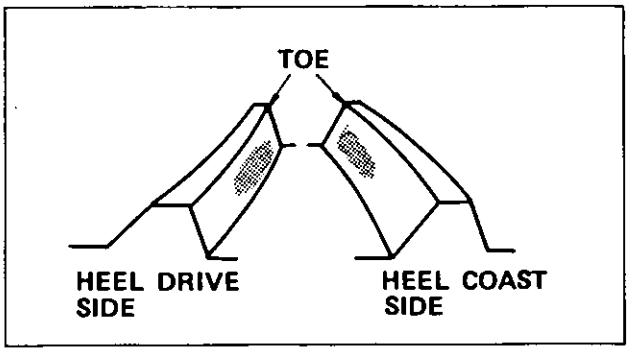


Fig. PD-35 Correct contact

Note: Change in the thickness of adjusting washer or shim is accompanied by change in backlash. Check it when installing the gear.

INSTALLATION

Installation can be accomplished in reverse order of removal by referring REAR AXLE installation.

TROUBLE DIAGNOSES AND CORRECTIONS

A problem of noises always exists when the rear axle is in trouble and occur as syptom for trouble.

However, great care must be taken not to confuse with other noises such as engine noise, transmission noise, exhaust noise, universal joint noise and tire noise.

Troubles	Possible causes	Remedies
Noise on drive	Shortage of oil.	Supply gear oil.
	Incorrect tooth contact between drive gear and drive pinion.	Adjust tooth contact.
	Damaged differential side bearing or improper adjustment.	Replace or adjust.
	Damaged gear.	Replace defective parts.
Noise on coast	Incorrect backlash between drive gear and drive pinion.	Adjust backlash.
	Incorrect adjustment of drive pinion bearing.	Adjust correctly.
Noise on drive and coast	Worn or damaged drive pinion bearings.	Rebuild differential and replace as required.
	Incorrect tooth contact pattern.	Adjust backlash or replace the hypoid gear set.
	Damaged side gear, drive gear, drive pinion teeth surface.	Replace required parts.
	Seized drive gear and drive pinion.	Replace hypoid gear set.
	Pinion bearing under inadequate preload.	Adjust preload.
	Seized, damaged or broken pinion bearing.	Replace the bearing.
	Seized, damaged or broken side bearing.	Replace the side bearing.
	Swinging differential case.	Replace the differential case.
	Loosen clamp bolts and nuts holding drive gear, side bearing, etc.	Retighten them to the designated torque.
Noise on turn	Side gear jammed in differential case.	Replace defective parts.
	Pinion gears too tight on their shaft.	Replace as required.
	Worn or damaged side gear thrust washer and pinion thrust washer.	Replace.
Excessive backlash	Incorrect backlash between drive gear and drive pinion.	Adjust backlash.

	Worn differential gears or case.	Replace worn parts.
Breakage of differential	Shortage of oil or use of improper oil. Severe service due to an excessive loading, improper use of the clutch. Incorrect adjustment of bearings. Incorrect adjustment of drive gear and drive pinion. Excessive backlash due to defacement of side gear and thrust washer. Loosened bolts and nuts, such as drive gear bolts.	Rebuild differential and replace as required. After adjusting preload of bearings, backlash and engaging condition of gears, fasten parts and apply specified volume of genuine gear oil. Avoid abusing of the car.

SERVICE DATA AND SPECIFICATIONS

Final gear type ..... Hypoid

Final gear ratio (number of teeth)

Sedan, Coupe, Wagon & Van ..... 3,900 : 1 (39 : 10)

Speedometer ratio

Sedan, Coupe, Wagon & Van ..... 15 : 4

Drive pinion

Preload when using new bearings (without oil seal) kg-cm (in-lb) ..... 6 to 8 (5.2 to 6.9)

Standard distance between drive gear center and top face of drive pinion mm (in) ..... Approximately 45.0 (1.772)

Thickness of drive pinion adjusting washers mm (in) ..... From 2.74 to 3.25 (0.1079 to 0.1280)
Spacing 0.03 (0.0012)

Length of drive pinion bearing spacer mm (in) ..... From 51.69 to 52.51 (2.035 to 2.067)
Spacing 0.85 (0.0335)

Drive gear

Backlash between drive gear and pinion mm (in) ..... 0.10 to 0.15 (0.0039 to 0.0059)

Run-out of rear side of drive gear mm (in) ..... Less than 0.05 (0.0020)

Side gear and pinion mate

Thickness of side gear thrust washers	mm (in)	0.76 to 0.91 (0.0299 to 0.0358)
Clearance between side gear and thrust washer	mm (in)	0.10 to 0.20 (0.0039 to 0.0079)

Side bearing

Standard width	mm (in)	17.5 (0.689)
Thickness of side bearing adjusting shims	mm (in)	0.05, 0.07, 0.10, 0.20, 0.50 (0.0020, 0.0028, 0.0039, 0.0078, 0.0197)

Tightening torque

Drive pinion nut	kg-m (ft-lb)	12 to 17 (86.8 to 123)
Drive gear bolts	kg-m (ft-lb)	6 to 7 (43.4 to 50.6)
Side bearing cap bolts	kg-m (ft-lb)	5 to 6 (36.2 to 43.4)
Differential carrier to axle housing fix nuts	kg-m (ft-lb)	1.7 to 2.5 (12.3 to 18.1)
Companion flange to propeller shaft fix nuts	kg-m (ft-lb)	2.0 to 2.7 (14.5 to 19.5)
Oil filler plug	kg-m (ft-lb)	6 to 10 (43.4 to 72.3)

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FA

FRONT AXLE & FRONT SUSPENSION

FA

FRONT AXLE AND FRONT SUSPENSION ..... FA- 1
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FRONT AXLE AND FRONT SUSPENSION

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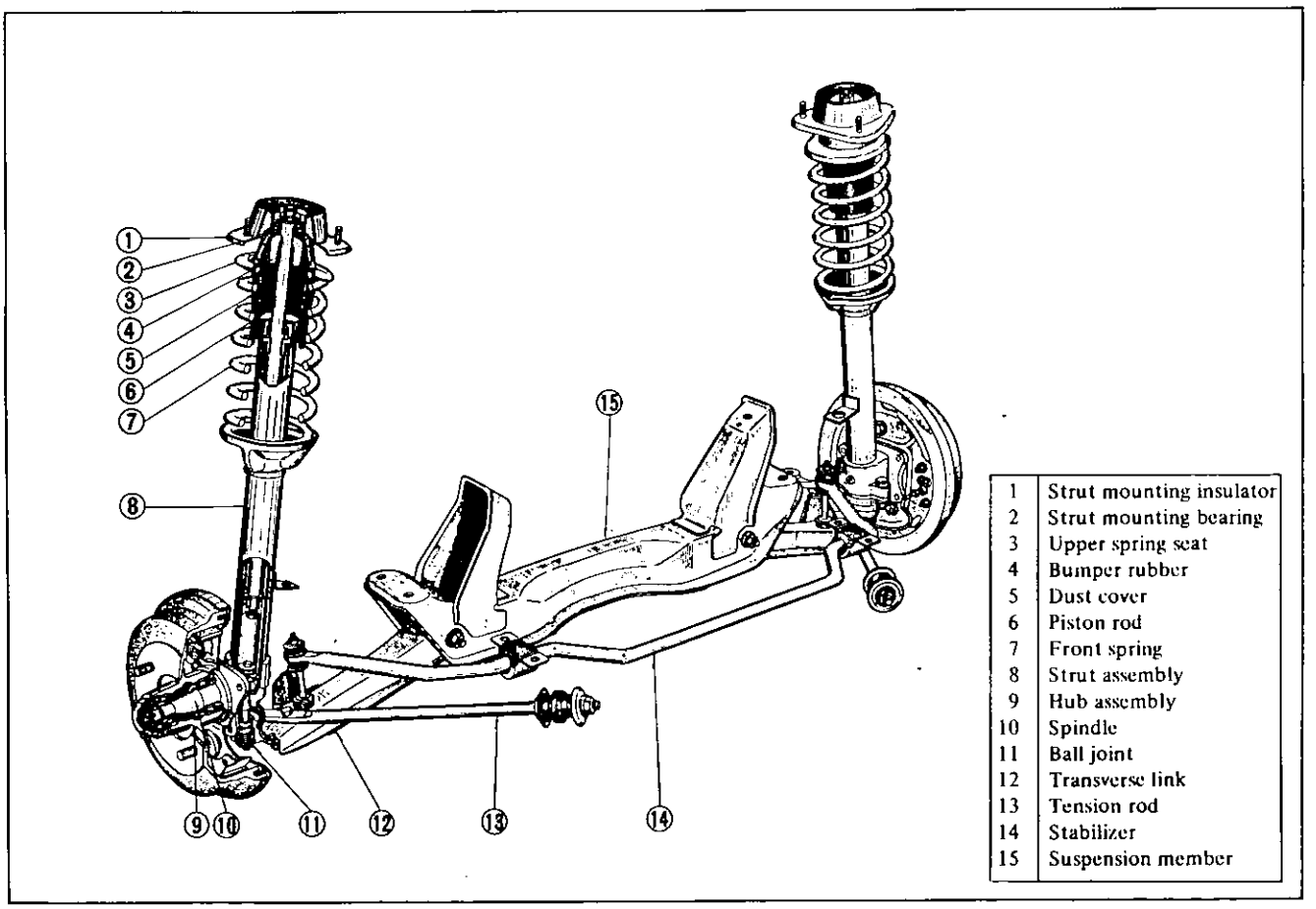


Fig. FA-1 Front axle and suspension assembly

DESCRIPTION

The front suspension is of a strut type. The shock absorber and spindle are combined to a single unit which is supported by the coil spring at the upper end and by the transverse link at the lower end.

The spindle is installed on the bottom of the strut outer casing by means of welding.

A ball-joint is attached to the lower part of the spindle. The ball-joint and the transverse link (lower link) are connected and they are fitted to the suspension member through a rubber bushing. The shock absorber mechanism is built in the strut outer casing. A coil spring is applied between the upper spring seat fitted to the upper end of the piston rod and spring seat welded to the outer casing. These components, assembled to a single unit, are fitted to the chassis frame at their upper part through the thrust bearing. Moreover, the transverse link supports the overall forward and backward strut movements by means of the tension rod fitted to the chassis frame through a rubber bushing. The rubber bushing adopts a non-linear shape with which the forward and rearward rigidities are changed. The torsion-bar type stabilizer adopted in this suspension system is used so that the strut maintains connection between both side struts.

Thus, this suspension mechanism absorbs shocks toward all directions into the chassis effectively and efficiently; the tension rod absorbs forward and backward shocks, the strut absorbs vertical shock, and the transverse-link absorbs shock applied toward sideway.

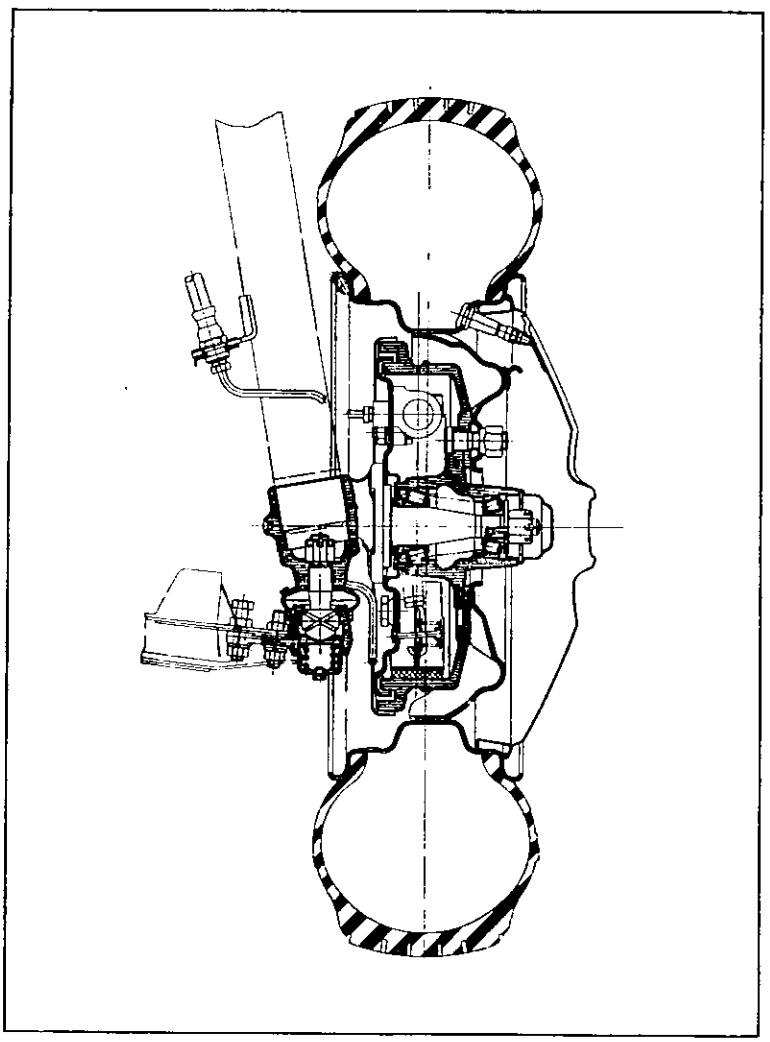


Fig. FA-2 Cross-sectional view of front axle (Drum type brake)

FRONT AXLE AND SUSPENSION ASSEMBLY

Removal

1. Jack up the vehicle, and support the vehicle with stands. (See the Section GI.)

2. Remove the hub nuts and remove the wheel.

3. Remove the splash board.

4. Loosen the brake tube connecting nut, remove the brake hose locking spring, withdraw the plate, and remove the brake hose from the strut assembly bracket.

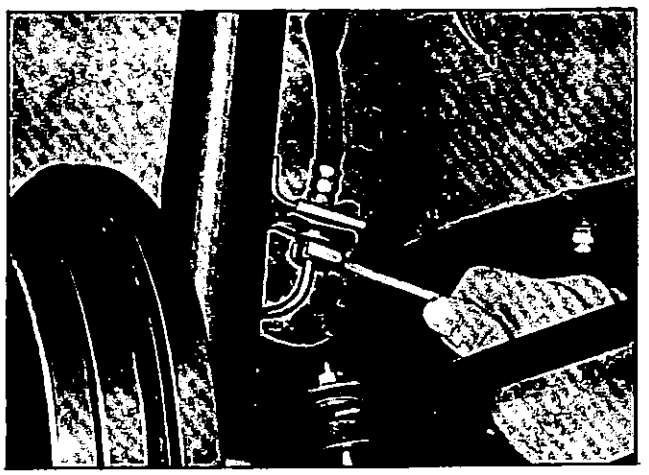


Fig. FA-3 Detaching brake hose

Note: Be careful not allow dust entering the brake hose.

5. Remove the stabilizer from the body.

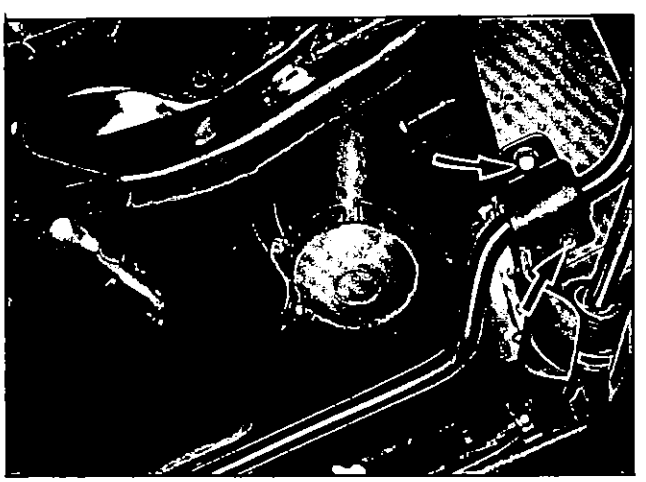


Fig. FA-4 Removing stabilizer

6. Remove cotter pin from the side rod socket ball joint of the steering, remove the castle nut, and separate the side rod socket from the knuckle arm.

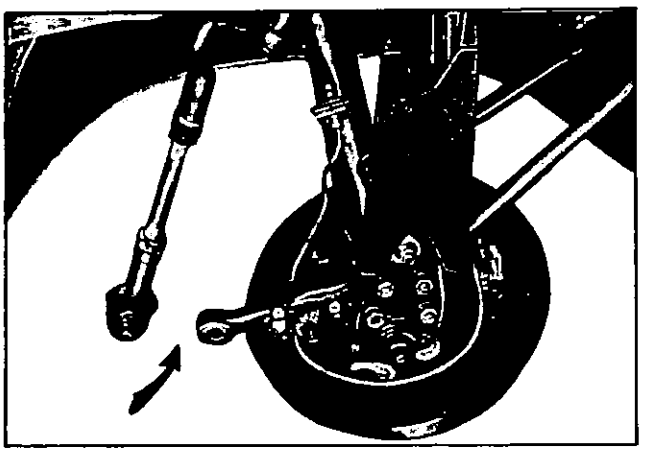
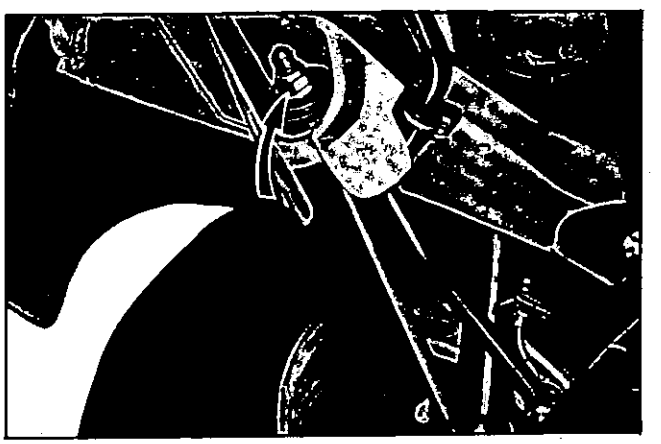


Fig. FA-5 Removing side socket from knuckle arm

7. Loosen the tension rod securing bolts and nuts, and remove the tension rod.



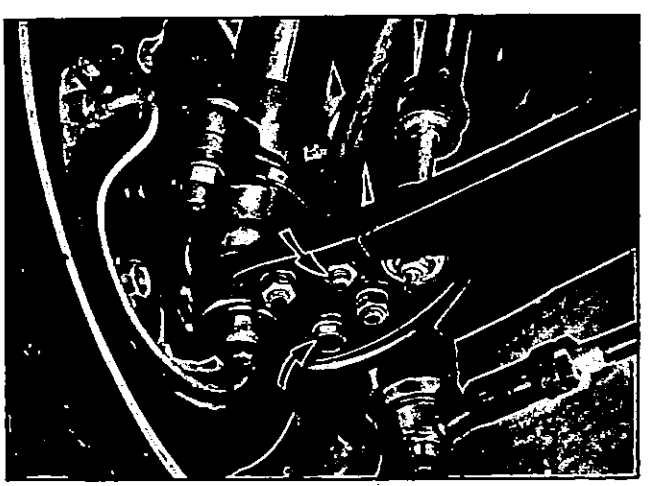


Fig. FA-6 Removing tension rod

8. Support the engine, remove the engine mounting bolts (indicated by arrow mark), and separate the suspension cross member from the engine assembly.

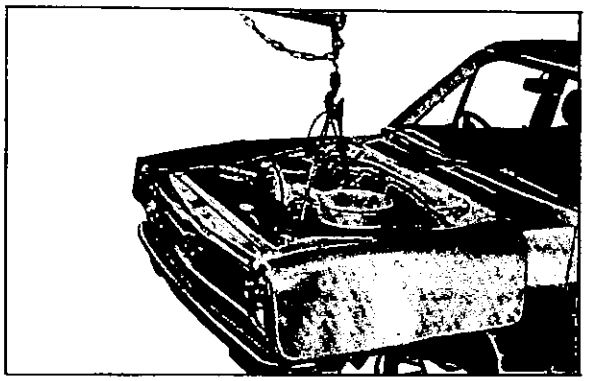


Fig. FA-7 Supporting engine

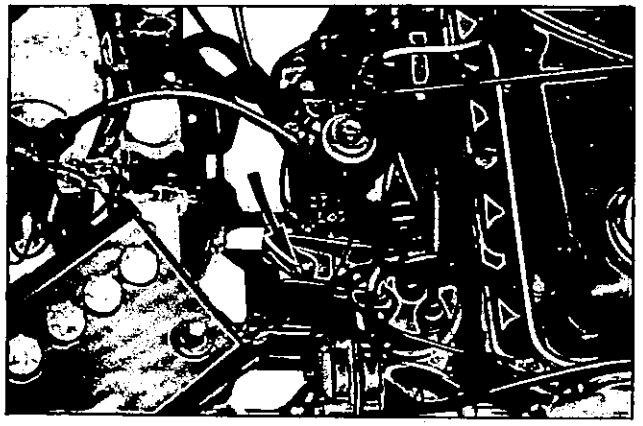


Fig. FA-8 Removing engine mounting bolts

9. Apply a jack to the patch unit in the center of the suspension cross member to support the member, loosen the bolts (indicated by arrow marks), and separate the suspension cross member from the body.

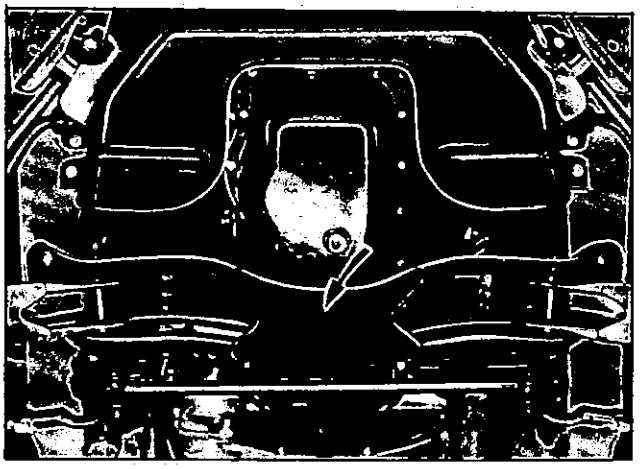


Fig. FA-9 Jack-up point of suspension cross member

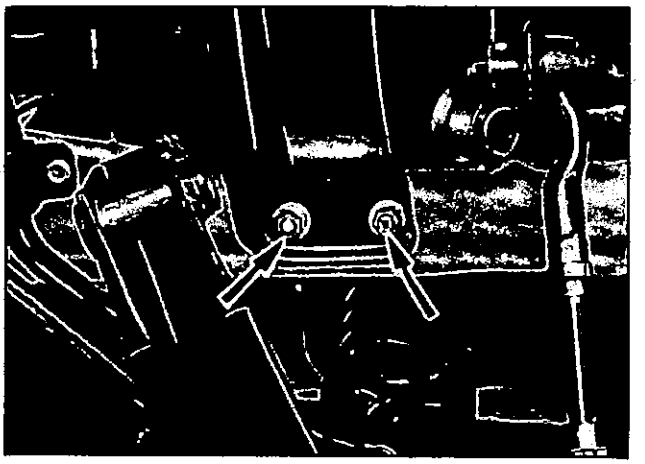


Fig. FA-10 Removing suspension cross member

10. Loosen the self-locking nut on the strut assembly, and holding the strut assembly, dismount the front suspension assembly.

Fig. FA-11 Removing self-locking nut

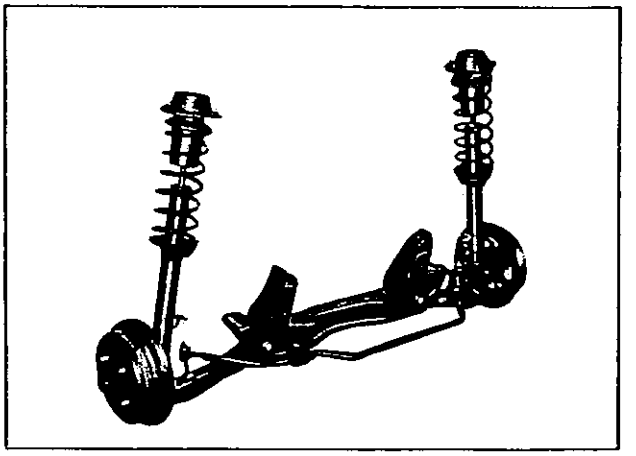


Fig. FA-12 Removing front axle and suspension assembly

Reinstallation

1. First, check rubber parts such as tension rod mounting bushing, stabilizer bar bushing, etc. for deterioration, crack, and other defective conditions, and replace as required.

2. Reinstall the front axle and suspension assembly in reverse sequence of removal, noting the following matters.

(1) Tighten the transverse link mounting bolts and stabilizer bar body side installation bolt to the rated tightening torque under the unladen vehicle.

(2) Install the stabilizer bar so that the white paint identification mark on the stabilizer bar is faced to the left side of the vehicle. Tighten the stabilizer connecting rod with tightening torque from 0.9 to 1.2 kg-m (6.5 to 8.7 ft-lb) through bushings. The same tightening torque 0.9 to 1.2 kg-m (6.5 to 8.7 ft-lb) also applies the frame side installation bolt.

Two types of transverse link side installation bolts [length below neck; 35 mm (1.378 in) and 25 mm (0.984 in)] are used, and for both types, the tightening torque is 2.2 to 3.0 kg-m (15.9 to 21.7 ft-lb).

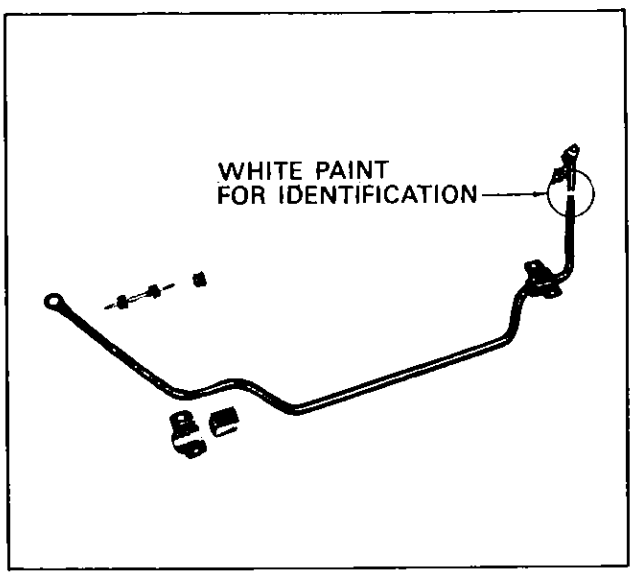


Fig. FA-13 Identification mark on stabilizer

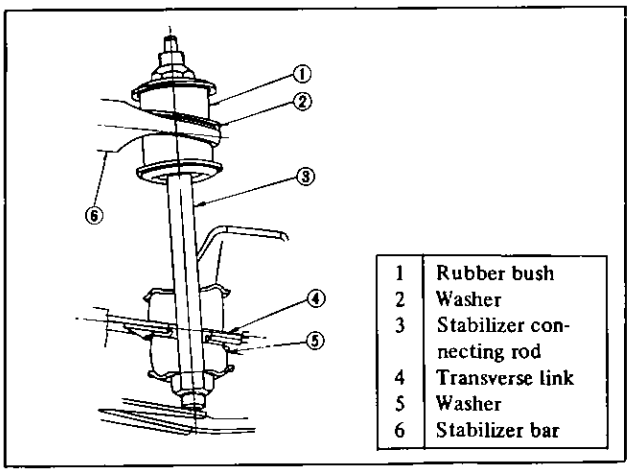


Fig. FA-14 Stabilizer connecting rod bushing layout

(3) Install the tension rod so that "L.H." mark on the tension rod is faced to left side of the vehicle and "R.H." mark is to right as shown in Figure FA-15. Make sure that the body side bushing is in the correct position, and tighten the tension rod securely with tightening torque from 4.5 to 5.5 kg-m (32.5 to 39.8 ft-lb)

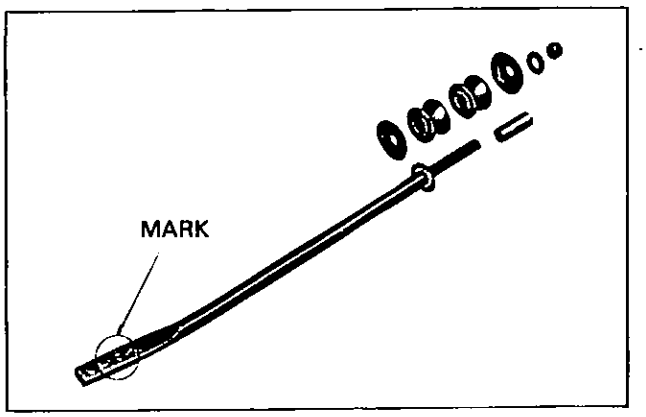


Fig. FA-15 Mark on the end of tension rod

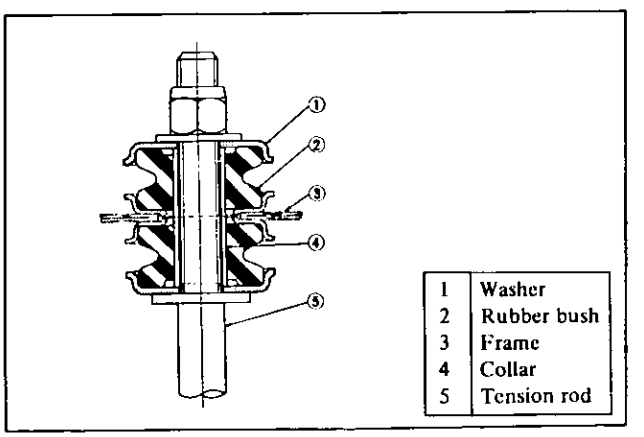


Fig. FA-16 Tension rod (body side) bushing layout

(4) Tightening torque of front suspension cross member and body is 3.2 to 4.0 kg-m (23.1 to 28.9 ft-lb).

(5) Tightening torque of bolt used to secure the upper portion of the strut assembly on the body is 1.6 to 2.1 kg-m (11.6 to 15.2 ft-lb).

FRONT AXLE

Removal

1. Jack up the vehicle, remove the wheel, and disconnect the brake hose at the strut outer casing bracket unit. (For the details, see "Removal of front axle and suspension assembly".)

2. Remove the brake caliper installation bolts, and remove the caliper assembly. (Disc type brake)

3. Remove the brake drum. (Drum type brake)

4. Remove the hub cap with a flat-headed (-) screwdriver or other proper tool and hammer. Be sure to tap lightly.

5. Remove cotter pin from the wheel bearing lock nut, and remove the lock nut.

6. With the wheel bearing washer and wheel bearing installed on the wheel hub, remove the wheel hub from the spindle.

In the case of a disc type brake, the wheel hub may be removed with the disc rotor installed on the wheel hub.

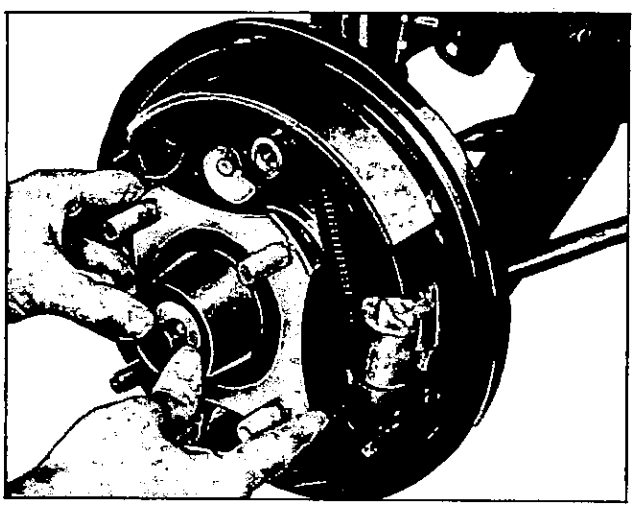


Fig. FA-17 Removing wheel hub

7. Remove the return spring and brake shoes, remove brake disc assembly installation bolts, and remove the brake disc assembly from the spindle. (Drum type brake)

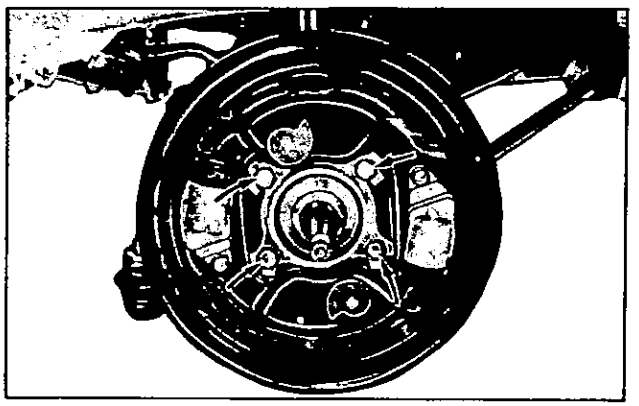


Fig. FA-18 Removing brake disc assembly

8. Remove baffle plate set screws, and remove the baffle plate. (Disc type brake)

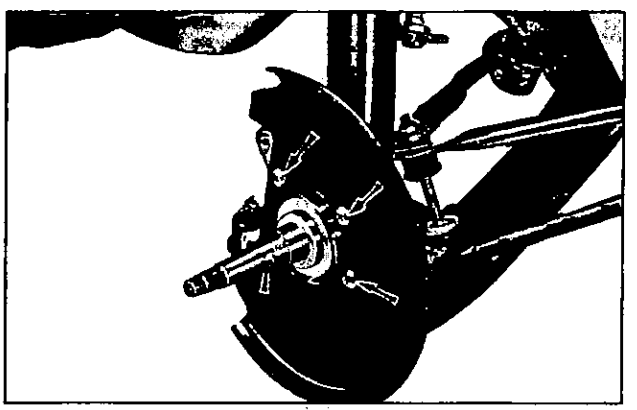


Fig. FA-19 Removing baffle plate

9. Utilizing two grooves inside the wheel hub, tap and remove the wheel bearing outer race from the hub.

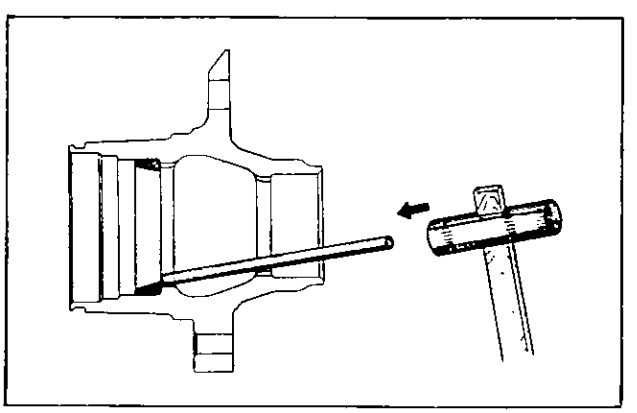


Fig. FA-20 Removing wheel bearing outer race

10. Remove four brake disc fitting bolts, and remove the brake disc rotor from the wheel hub assembly. (Disc type brake)

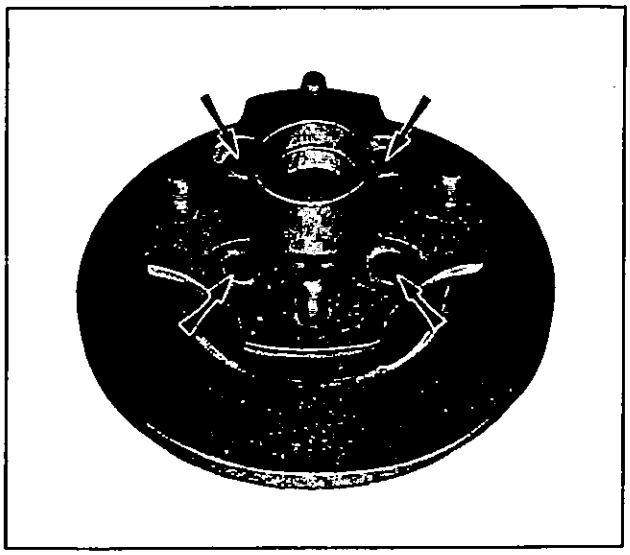


Fig. FA-21 Removing brake disc rotor

Inspection

1. Grease seal

(1) When grease leakage is detected during disassembly, replace.

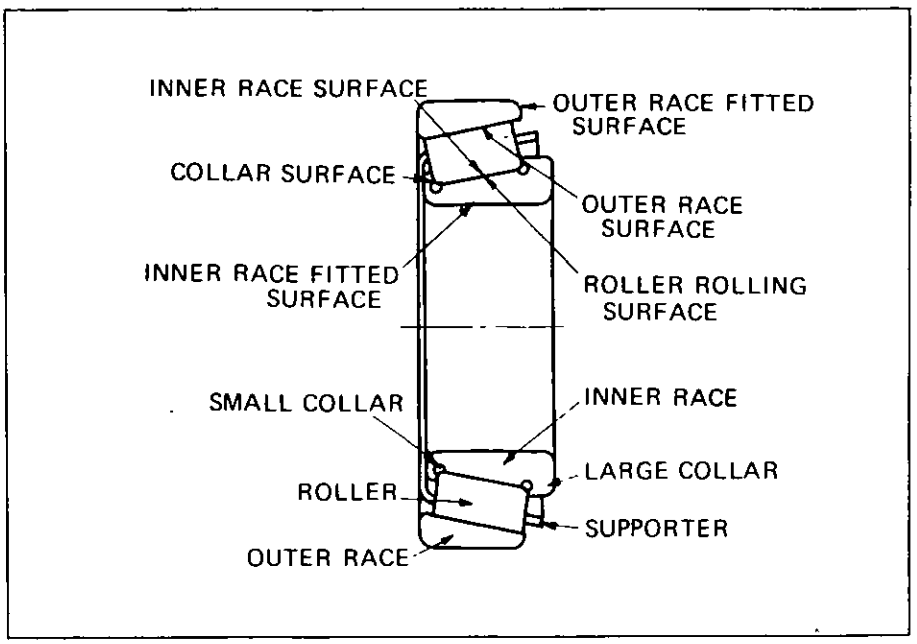
(2) Replace the grease seal with a new one, if worn or cracked.

2. Wheel bearing

Remove used grease from the wheel bearing with solvent, and inspect the bearing for operating condition from the rotation, operating sound and appearance. The outer race may be checked for the condition of rolling surface with the race installed on the wheel hub.

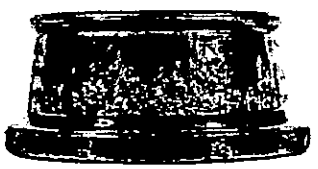
Visual serviceability judgement standard for the wheel bearing is indicated in the following table.

Visual Serviceability Judgement Standard for Wheel Bearing



Judgement	x : Unserviceable △ : May be used when minor. * : Rust should be removed with #0 emery paper.			
	Race and roller		Supporter	Cause
	Race surface roller and collar surface	Fitted surface		
Flaking	x			Service life due to rolling fatigue. However, this symptom occurs before the service life. The following causes are considered. . Abnormal load (overload) . Improper handling or improper installation
Crack	x	x	x	. Excessive tightening . Gap is excessive and a considerable shock is received from the outside. . Rapid heat generation on the race due to creep . Rollers bite the supporter due to seizure . Abnormal thrust load . Tapped with a hammer while removing
Seizure	x	x	x	In the most cases, seizure occurs as the result of grown discoloring or flaking
Scratch	△	△	△	. Shock is given carelessly during installation . Bit foreign matter
Recess or wear made by pressing or striking	△	△	△	. Careless installation, removal, or other handling (scar due to striking) . Recess made by bit foreign matter
Wear	△	△	△	. Poor lubricant quality or deteriorated lubricant . Intrusion of dust. Fitted surface is worn remarkably. . Wear due to excessive preliminary pressure
Biting	△	△	△	. Excessive preliminary pressure or faulty lubrication
Fretting	△ *	△ *	△ *	. The fitted part is discolored to brown or black. . Fretting corrosion (rust on fitted part) means fine relative slip on metal) contact surface.

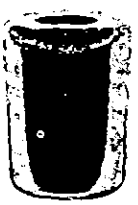
Rust	△*	△*	△*	. Temperature increased during operation lowers when the bearing stops, moisture inside the bearing is condensed, becoming fine drips, and the grease is moistened. . The bearing has been placed in a highly moistened place for a long period of time. . Intrusion of moisture, chemicals, etc., or the bearing is touched with bare hand and no rustproof action has been taken.
Discoloring	The wheel bearing is serviceable if discoloring can be removed with solvent (such as thinner) or by polishing.			. Slight discoloring may become like oxidized oil stain due to grease . In the most cases, this occurs when preliminary pressure is too high.



Inner race

Roller flaking

Cracked inner race



Cracked roller

Recess on inner race made by bit foreign matter

Recess on outer race made by bit foreign matter

Recess on roller made by bit foreign matter

Reinstallation

1. Reinstall the wheel bearing in reverse sequence of removal.

2. Install the bearing outer race by the use of a front wheel bearing drift (special tool ST35310000).

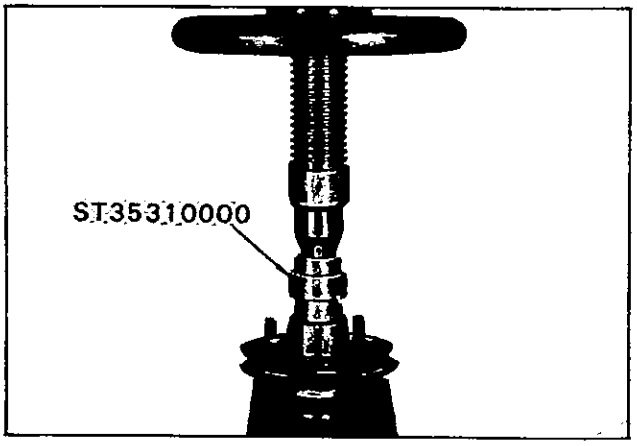


Fig. FA-22 Installing bearing outer race

3. Fill the wheel hub and hub cap with multi-purpose grease (MIL G2108 or 10924) up to the portion indicated by asterisk (*) in Figure FA-23.

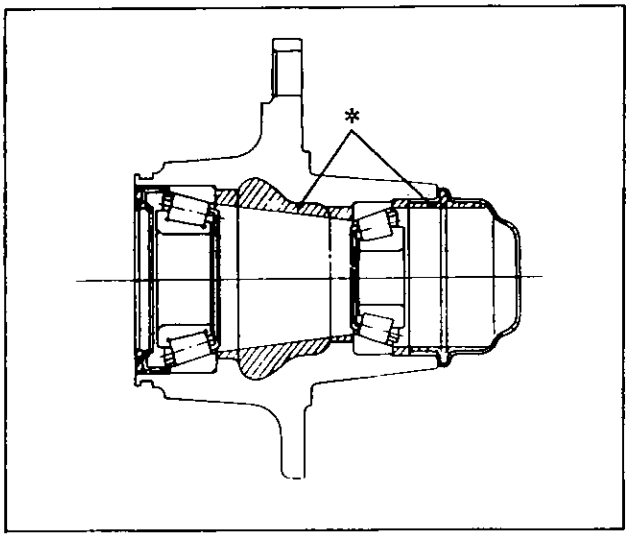


Fig. FA-23 Greasing points of hub assembly

4. Fill the spaces between wheel bearing rollers and grease seal lip pocket with multi-purpose grease sufficiently.

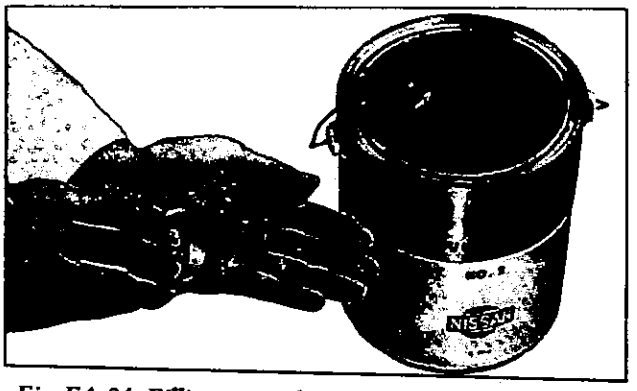


Fig. FA-24 Filling spaces between wheel bearing rollers with grease

5. Apply multi-purpose grease to the spindle shaft and threaded portions, wheel bearing washer, and wheel bearing lock nut surfaces slightly.

6. Install the wheel bearing and grease seal on the wheel hub, and install them on the spindle.

Note: In order to provide the bearing with a proper prepressure and to extend the bearing service life, install the wheel bearing, grease seal, washer, and lock nut carefully so that no dust and foreign matters stick on grease applied to them.

Wheel bearing adjustment

1. Tighten the wheel bearing lock nut to 2.2 to 2.4 kg-m (15.9 to 17.4 ft-lb) tightening torque.

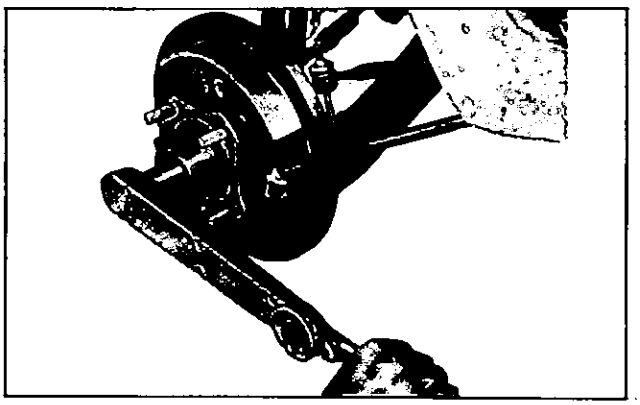


Fig. FA-25 Tightening wheel bearing lock nut

2. Turn the wheel hub in a few turns toward both clockwise and counterclockwise to settle down the bearing, and retighten the wheel bearing lock nut to the same tightening torque.

3. Return the wheel bearing lock nut in range from 40° to 70° and coincide it with cotter pin hole on the spindle.

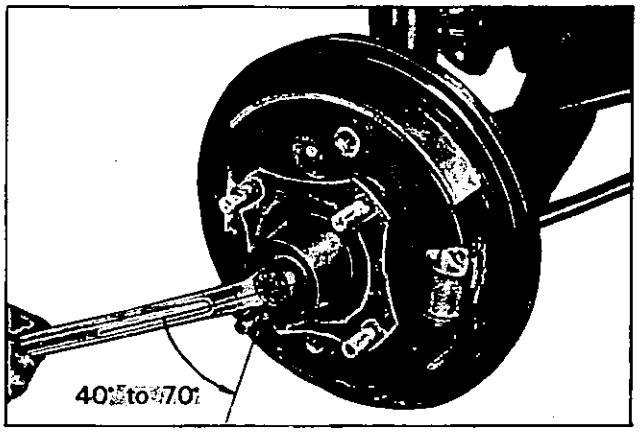


Fig. FA-26 Returning wheel bearing lock nut

4. Turn the wheel hub in a few turns toward both clockwise and counterclockwise again to allow the bearing breaking-in, measure bearing rotation starting torque, apply a cotter pin to secure the nut (if the measured starting torque is within the rated value), and install the hub cap.

Wheel bearing rotation starting torque:
9.0 kg-cm (7.8 in-lb) (New bearing)
4.0 kg-cm (3.47 in-lb) (Used bearing)

- At the hub bolt: 1.57 kg (3.46 lb) (New bearing)
  0.7 kg (1.54 lb) (Used bearing)
- No slackness should exist toward the axis direction.
- Be sure to remove the brake pad. (Disc type brake)
- Correctly measure starting force toward tangential direction against the hub bolt.

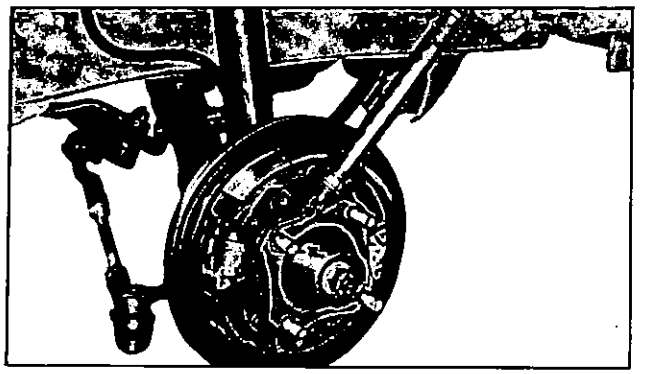
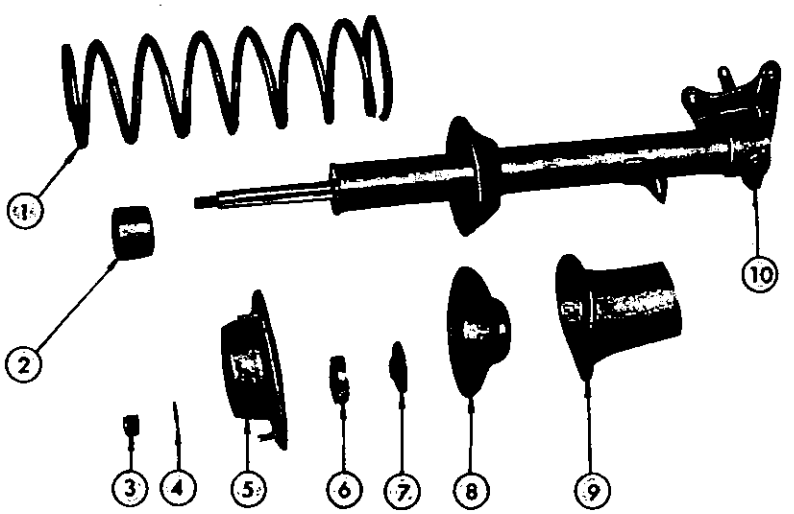


Fig. FA-27 Measuring wheel bearing rotation starting torque

STRUT ASSEMBLY

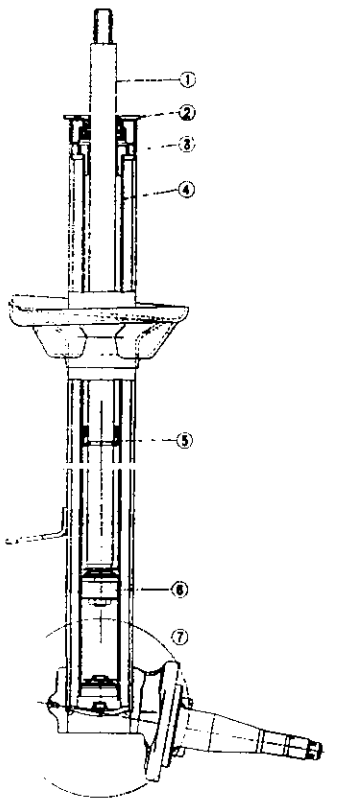
The strut assembly, consisting of a strut-outer casing with spindle, forms a cylinder between the piston rod guide and bottom valve.

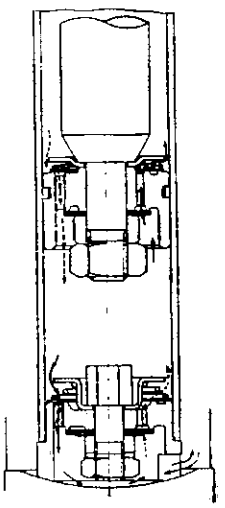
The inner components are precisely assembled, and no dirt and foreign matter intrusions are permitted. The components such as piston rod, piston rod guide, cylinder, and bottom valve are handled together as an assembly. When replacing them, be sure to replace the inner components as an assembly.



1	Front spring	5	Strut mounting insulator	8	Upper spring seat
2	Bound bumper	6	Strut mounting bearing	9	Dust cover
3	Piston rod self-locking nut	7	Oil seal	10	Strut assembly
4	Washer				

Fig. FA-28 Strut assembly components





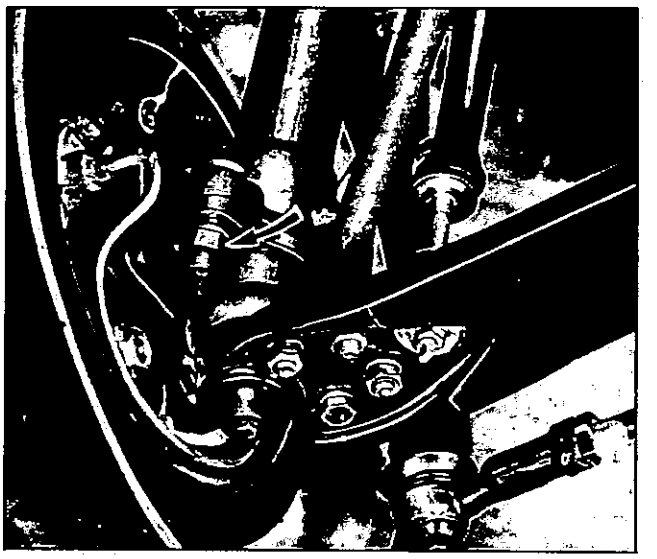
1	Piston rod	5	Rebound stopper
2	Gland packing	6	Piston
3	Piston rod guide	7	Bottom valve
4	Cylinder		

Fig. FA-29 Cross-sectional view of strut assembly and shock absorber operation

Disassembly

Disassemble and reassemble the strut assembly in a clean place so that the inner components are protected from dirt and other foreign matters.

1. Jack up the vehicle, remove the wheel, and remove the stabilizer bar and tension rod from the transverse link. Loosen the knuckle arm fixing bolts, and separate the strut assembly from the ball-joint. Loosen the self-locking nuts on the upper portion of the strut, and remove the strut assembly. (See the "Removal of Front Axle and Suspension Assembly" above, for details.)



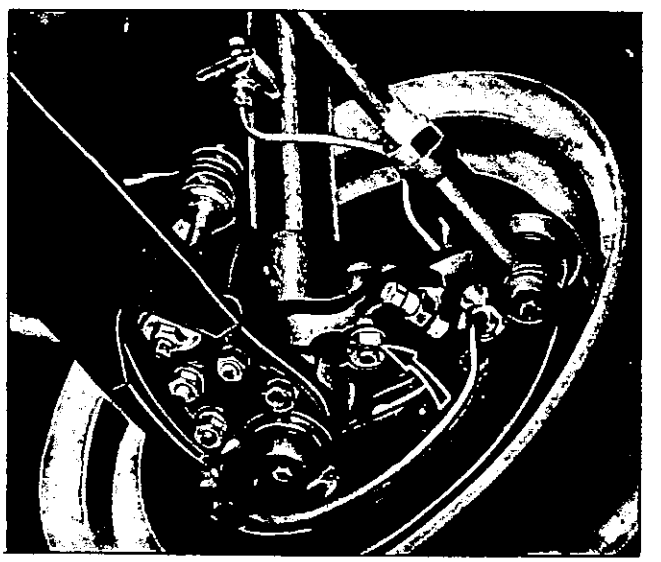


Fig. FA-30 Removing knuckle arm fixing bolt

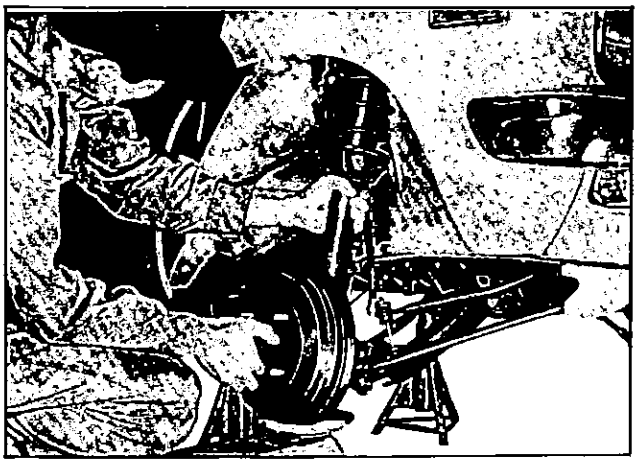


Fig. FA-31 Removing front strut assembly

2. Install a strut attachment (special tool ST35650000) on the strut outer casing with a piece of cloth applied between the strut assembly and outer casing, and secure the strut assembly in a vise.

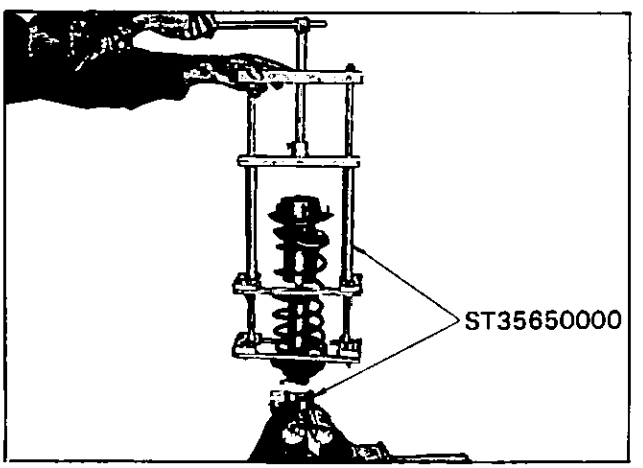


Fig. FA-32 Securing strut assembly in a vise

3. Install a coil spring compressor (special tool ST35650000) on the spring, compress the spring up to such an extent that the strut mounting insulator can be readily turned by hand, and remove the piston rod self-locking nut (used to hold down the spring).

Note: When loosening the self-locking nut, use a screwdriver as a shifter. Moreover, when loosening the self-locking nut (used to hold down the spring), install a nut on the bolt (used to install the strut on the body) and apply the screwdriver to the nut so that the thread of the bolt is not damaged.

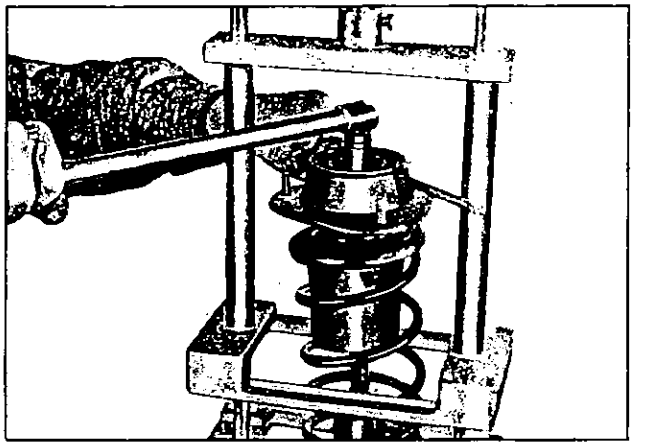


Fig. FA-33 Removing piston rod self-locking nut

4. Remove the strut mounting insulator, strut mounting bearing, oil seal, upper spring seat and dust cover.

5. Remove the spring with the coil spring compressor (special tool ST35650000) installed on the spring, from the strut. Remove the bound bamper from the piston rod.

6. Depress the piston rod down to the bottom and remove the gland packing with a gland packing wrench (special tool ST35500000).

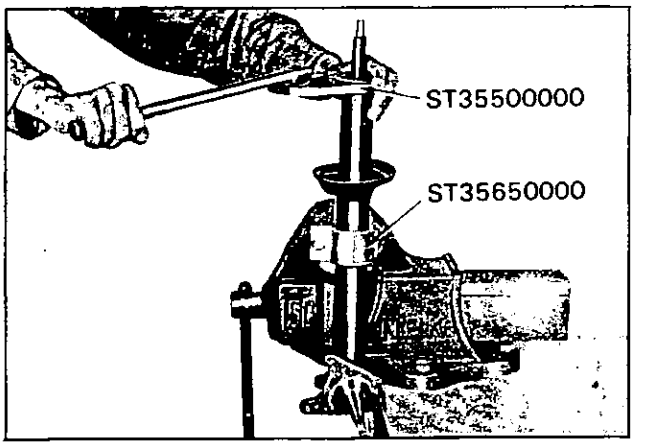


Fig. FA-34 Remvoing gland packing

Note: Before removing the gland packing, remove mud and other foreign matters from the gland packing and strut assembly.

7. Remove the O-ring from the upper portion of the piston rod guide.

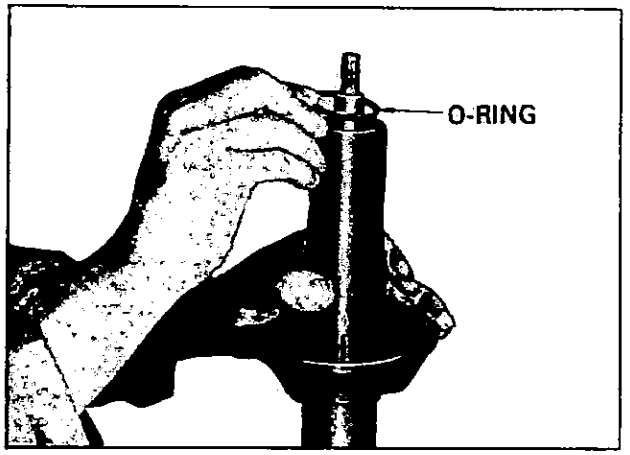


Fig. FA-35 Removing O-ring

8. Separate the piston rod and cylinder assembly upward from the strut tube slowly and carefully.

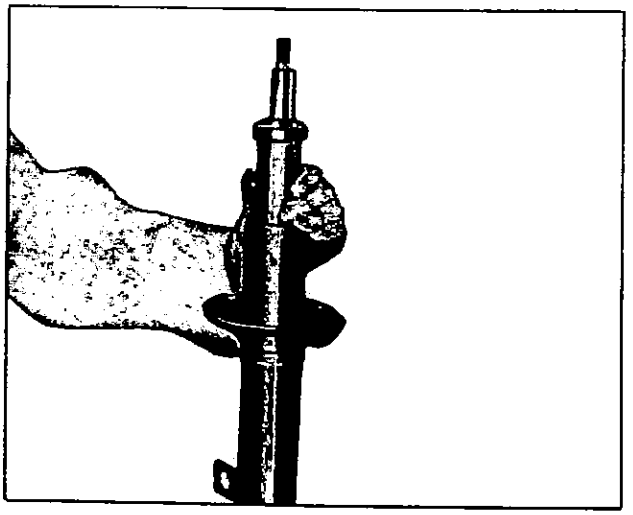


Fig. FA-36 Removing piston rod and cylinder assembly

Note: Do not remove the piston rod and guide from the cylinder. They are precisely assembled and thus, should be handled as an assembly.

9. Drain damping oil from the cylinder and strut outer casing into a clean container.

Note: This procedure should be strictly observed because shock absorber performance is directly affected by amount of damping oil. When refilling, measure amount of damping oil correctly.

Inspection

1. Be sure to replace the gland packing, O-ring and damping oil with new ones whenever the strut assembly is disassembled.

2. Wash all disassembled parts, except for nonmetal parts, with gasoline or thinner, and remove dirt and other foreign matters with compressed air.

3. Clean the nonmetal parts with compressed air.

- **Strut outer casing**

  Replace, if deformed, cracked or damaged.

- **Spindle**

  Check the spindle especially carefully for hair crack on the base and damaged threaded portion. Replace the strut assembly, if faulty condition exists.

- **Strut mounting insulator**

  Replace if rubber and metal joint is melted or cracked. Replace the rubber parts, if they are deteriorated.

- **Front spring**

  Replace, if weakened or cracked.

  Specifications for spring

Free length	338 ± 10 mm (13.3 ± 0.394 in)
Installed height/load	203 ± 5 mm (7.99 ± 0.1969 in) /200 kg (441 lb)

- **Strut mounting bearing**

  Replace, if unusual sound occurs during rotation or slackness toward the axis direction is excessive.
  When installing the strut mounting bearing, be sure to fill it with multi-purpose grease (MIL G-2108 or 10924).

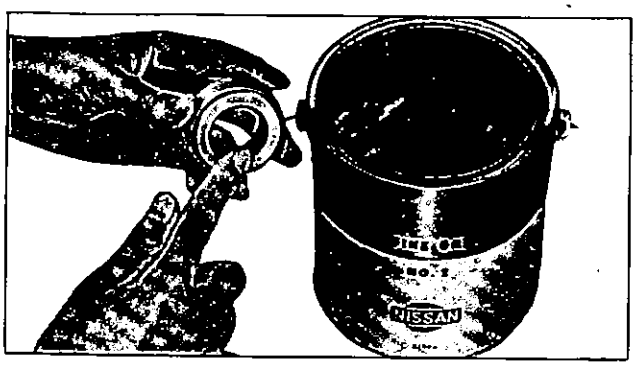


Fig. FA-37 Greasing strut mounting bearing

Reassembly

Be careful not to drop or scratch part since all parts are precision finished. When reassembling, thoroughly clean all component parts, and make sure that dirt and other foreign matters are completely removed. During reassembly, do not use cloth or gloves.

1. Secure the strut attachment of strut outer casing in a vise. (Strut attachment – special tool ST35650000)

2. Insert the piston rod and cylinder assembly into the strut outer casing.

3. Fill the strut outer casing with correct amount of oil.

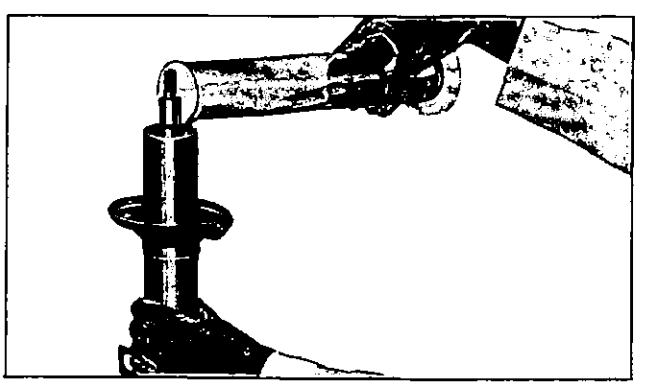


Fig. FA-38 Pouring shock absorber oil

Note: a. Correctly measure amount of shock absorber oil to be poured because amount of oil directly affects damping power.

280 cc (17.1 cu in) for AMPCO (ATSUGI) make
265 cc (16.2 cu in) for TOKICO make

b. Use Nissan genuine oil for the shock absorber oil.

Nisseki Shock Absorber Oil A-2 for Atsugi make.
Tokico Light Oil No. 1 D-S for Tokico make.

4. Install a rubber O-ring on top of the piston rod guide, and install the gland packing by the use of a gland packing guide (special tool ST35550000).

Apply multi-purpose grease (MILG-2108 or 10924) lightly to the lip portion indicated by asterisk (*) in Figure FA-40.

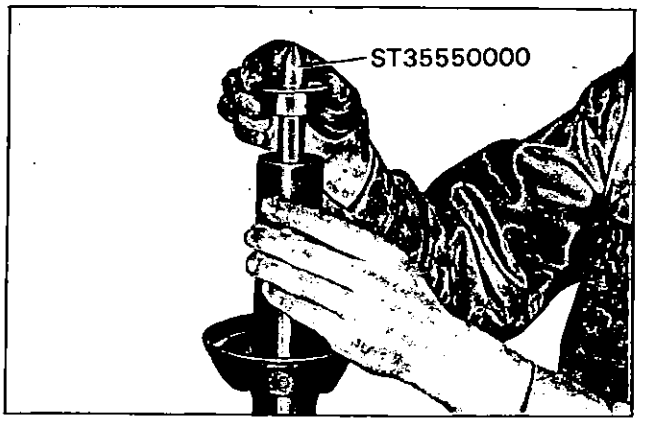


Fig. FA-39 Installing gland packing

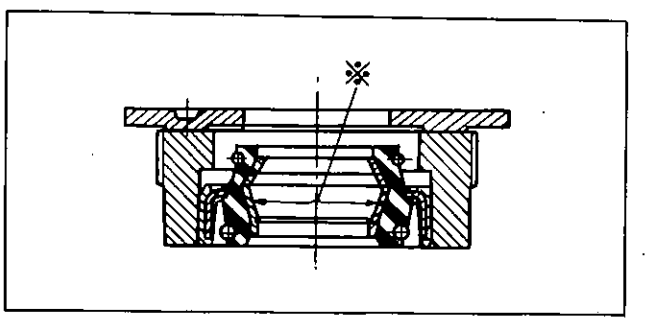


Fig. FA-40 Cross-sectional view of gland packing

5. Tighten the gland packing to 8.0 to 11.0 kg-m (57.8 to 79.5 ft-lb) by the use of a gland packing wrench (special tool ST35500000).

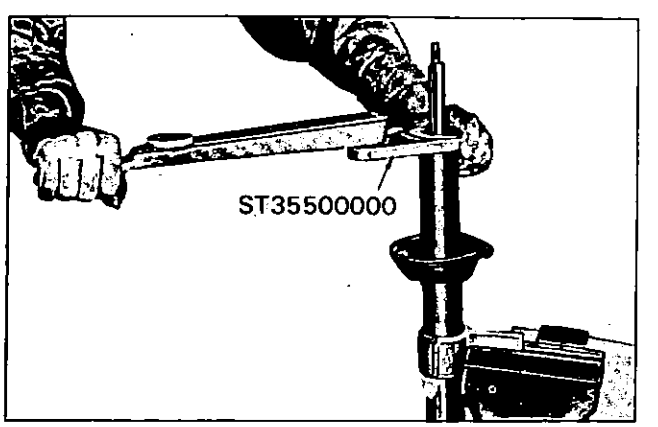


Fig. FA-41 Tightening gland packing

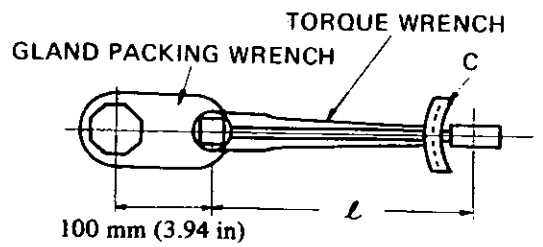
Note: a. Before tightening the gland packing, pull the piston rod approximately 90 mm (3.543 in) upward. This will provide the shock absorber system with the best condition for bleeding.

b. Gland packing tightening torque is rated at 8.0 to 11.0 kg-m (57.8 to 79.5 ft-lb). However, arm length of this tool is extended by 100 mm (3.94 in) as shown in the following figure. Thus, when actually tightening the gland packing, measure effective length (ℓ) of a torque wrench to be used, and set up torque wrench value based on the following formula.

$$C = 10 \times \left(\frac{\ell}{\ell + 100}\right) \text{kg-m} \quad \left[C = 70 \times \left(\frac{\ell}{\ell + 3.94}\right) \text{ft-lb}\right]$$

where, C ..... Value read on the torque wrench [kg-m (ft-lb)]

ℓ ..... Effective length of torque wrench [mm (in)]

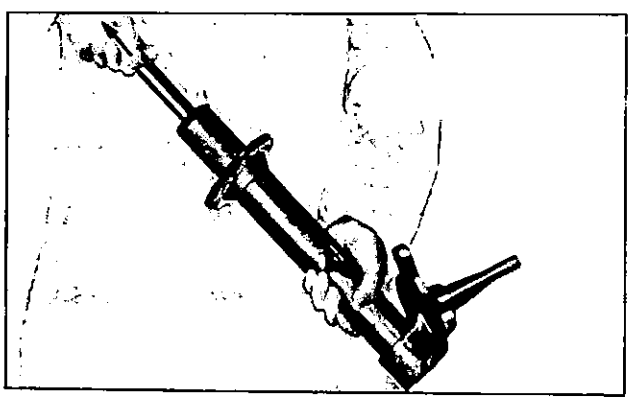


6. Conduct air bleeding on the shock absorber system

(1) Stand the strut assembly vertically with the spindle side down, and pull the piston rod within its stroke. Turn over the strut assembly (with the spindle side up), and depress the piston rod in the full stroke.

(2) Repeat the above described operations several times.

(3) Make sure that there is no feeling variation on pressure while depressing or pulling the piston rod. Thus, air bleeding completes.



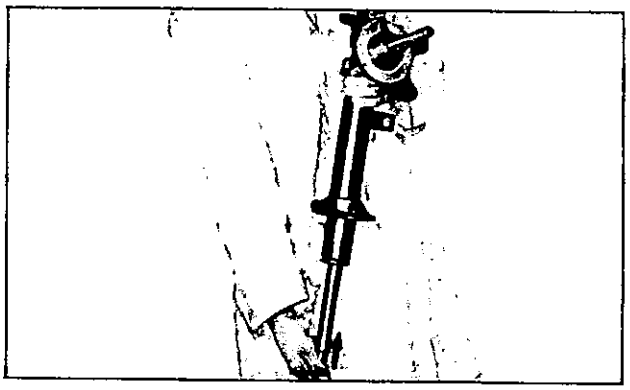


Fig. FA-42 Conducting air bleeding on the shock absorber system

7. Secure the strut attachment of strut assembly in a vise. (Strut attachment – special tool ST35650000)

8. In order to ease operation, raise the piston rod to the up-most, and secure it in that position by inserting bound bumper.

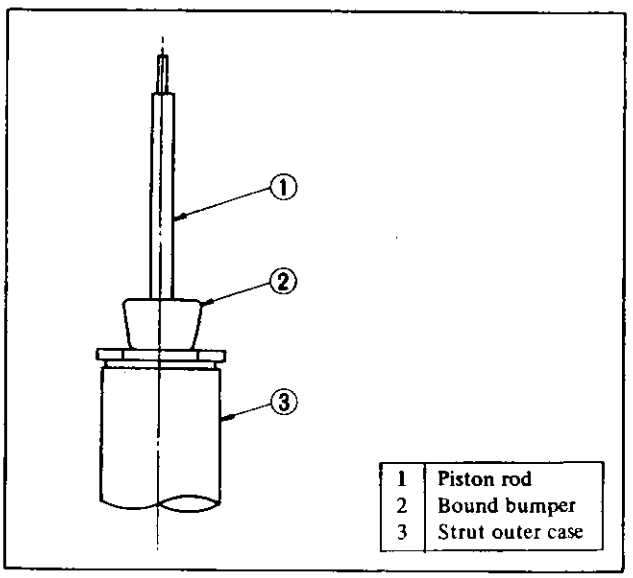


Fig. FA-43 Raising piston rod

9. Place the front spring on the lower spring seat, compress the spring with a coil spring compressor (special tool ST35650000), install the dust cover, upper spring seat, oil seal, strut mounting bearing, and strut mounting insulator in that order.

10. Apply multi-purpose grease (MIL G2108 or 10924) to " * " marked portion shown in Figure FA-44.

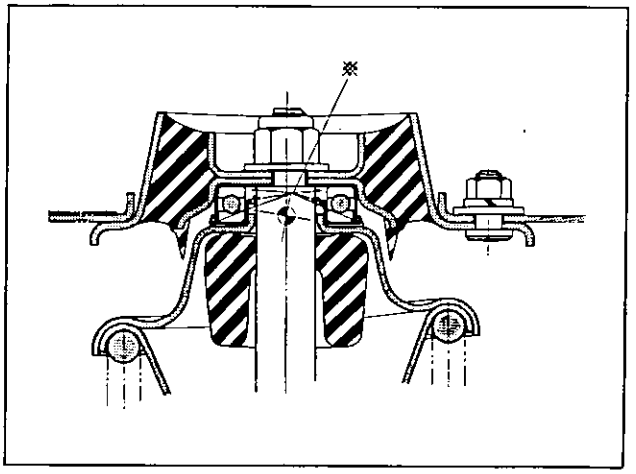


Fig. FA-44 Greasing point on strut mounting bearing and oil seal

Note: a. Be careful not to damage the piston rod when disassembling or reassembling the strut assembly. Particularly when raising the piston rod do not use pliers or other tool to hold the rod.

b. Pay attention on the strut mounting bearing installing direction. (See Figure FA-44.)

11. Tighten the piston rod self-locking nut to 3.6 to 4.5 kg-m (26.0 to 32.5 ft-lb)

12. Release the coil spring gradually from the coil spring compressor, and set the spring to the upper and lower spring seats correctly.

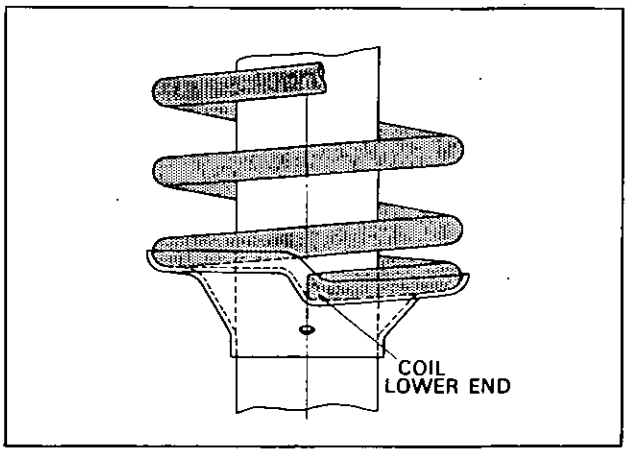


Fig. FA-45 Installing front spring

13. Raise the found bumper to the upper spring seat side.

Tightening torque:

Nuts used to install the strut assembly on the body:
1.6 to 2.1 kg-m (11.6 to 15.2 ft-lb)

Bolts used to install the knuckle arm to strut:
4.6 to 6.1 kg-m (33.3 to 44.1 ft-lb)

Nut used to install the tension rod on the transverse link:
2.2 to 3.0 kg-m (15.9 to 21.7 ft-lb)

Stabilizer installation bolts

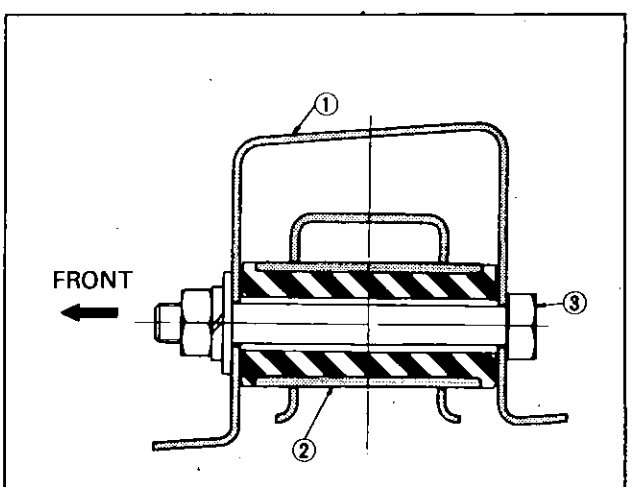
Transverse link bracket side:
0.9 to 1.2 kg-m (6.5 to 8.7 ft-lb)

Frame bracket side:
0.9 to 1.2 kg-m (6.5 to 8.7 ft-lb)

TRANSVERSE LINK AND LOWER BALL JOINT

The transverse link is connected to the suspension member with the rubber bushing (sticked to the inner tube), the transverse link is also connected to the strut assembly through the lower ball joint, and thus, the front suspension link mechanism is formed.

The lower ball joint is of a non-disassembled type. Lubricate the lower ball joint every 50,000 km (30,000 miles) or two years.



1	Suspension cross member	3	Transverse link mounting bolt
2	Transverse link		

Fig. FA-46 Cross-sectional view of transverse link bushing

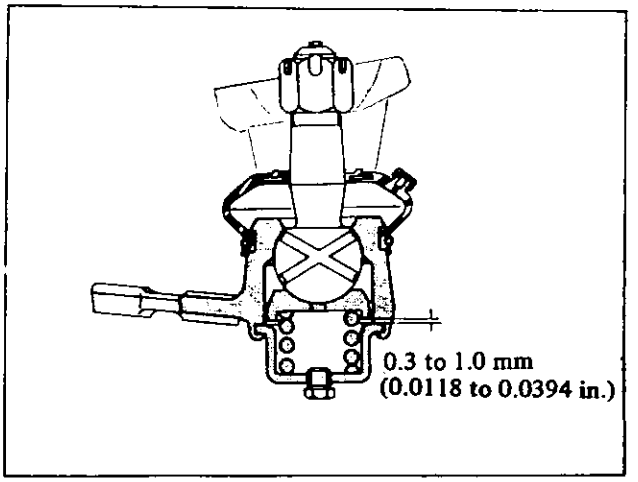


Fig. FA-47 Cross-sectional view of ball joint

Removal

1. Jack up the vehicle, remove the wheel, and remove the stabilizer bar and tension rod from the transverse link. Loosen the knuckle arm fixing bolts, and separate the ball joint from the strut assembly. (See "Removal of front axle and suspension assembly" above for details.)

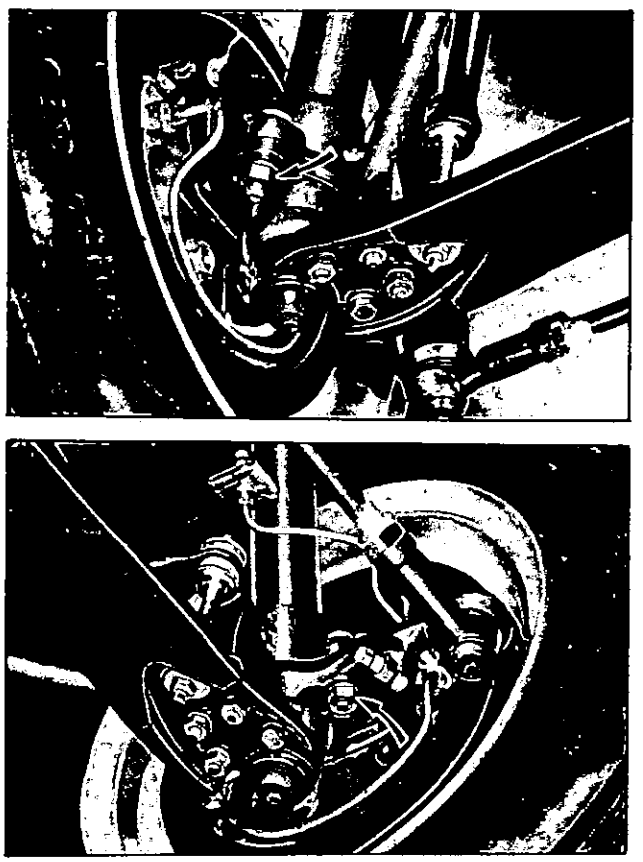


Fig. FA-48 Loosening knuckle arm fixing bolts

2. Loosen the transverse link mounting bolt, and separate the transverse link from the suspension member.

Fig. FA-49 Loosening transverse link mounting bolt

3. Remove cotter pin from the castle nut on the knuckle arm, loosen the castle nut, and remove the knuckle arm from the ball joint.

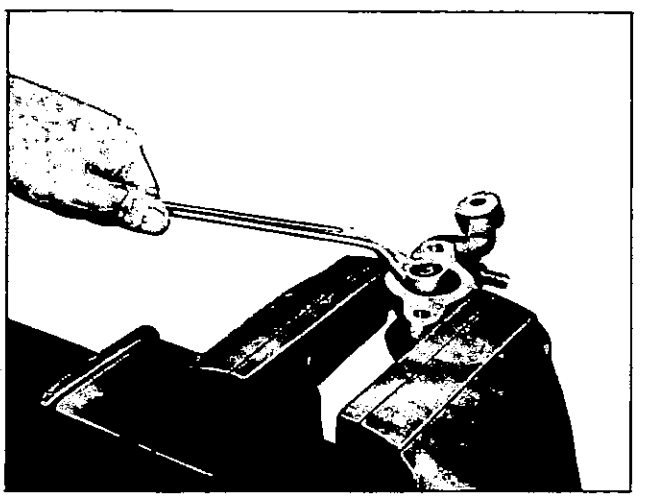


Fig. FA-50 Removing knuckle arm

4. Loosen the ball joint installation nut, and remove the ball joint from the transverse link.

5. Withdraw the transverse link bushing from the transverse link with a front transverse link bushing replacer set (special tools ST36721000 & ST36722000) and a press.

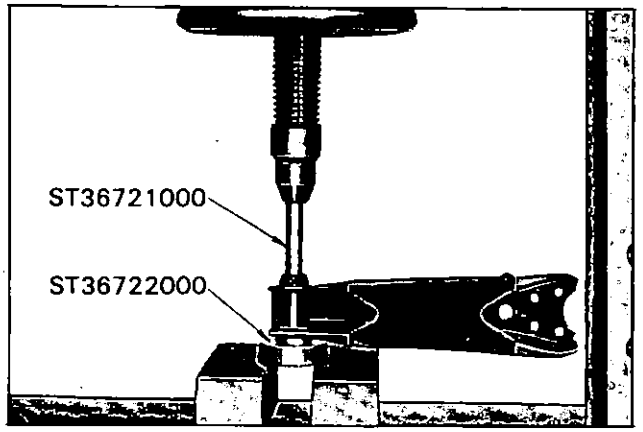


Fig. FA-51 Removing transverse link bushing

Inspection

- **Transverse link bushing**

  Rubber and inner tube joints (adhered) are sticky (melted) or cracked, replace the transverse link as an assembly.

- **Ball joint**

  1. The ball joint is of a non-disassembled type, and therefore, the ball joint cannot be disassembled. Measure end play toward the axial direction and shaking torque, and replace, when deviated from the standards.

  Standard end play (axial direction):
  0.3 to 1.0 mm (0.0118 to 0.0394 in)

  Shaking torque: 35 to 60 kg-cm
  (30.4 to 52.1 in-lb)

  [At the cotter pin opening position:
  6.6 to 11.3 kg (14.6 to 24.9 lb)]

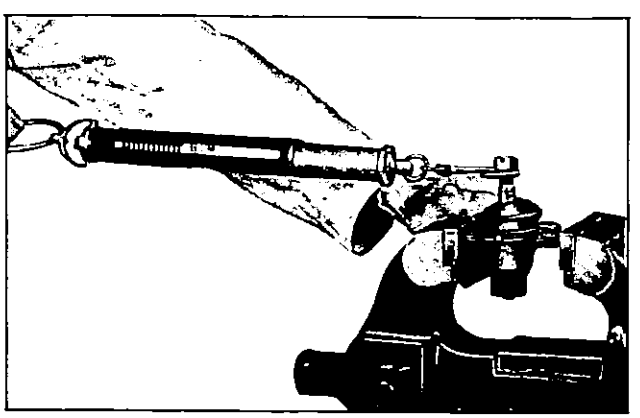


Fig. FA-52 Measuring ball joint shaking torque

2. Replace the ball joint with a new one, when the dust cover is cracked.

3. Lubricate the ball joint with multi-purpose grease (MIL G2108 or 10924) every 50,000 km (30,000 miles) or two years.
Install a grease nipple on the plug hole, and grease completely so that old grease is replaced with new grease. Be sure to reinstall the plug when completely greased.

Note: When a high-pressure grease gun is used, operate the grease gun carefully so that grease is injected slowly and new grease does not come out from the clamp portion.

Reinstallation

Reinstall the transverse link and lower ball joint in reverse sequence of removal noting the following instructions:

1. When transverse link collar interior (along which the transverse link bushing is inserted) is rusted, remove it with emery paper.

2. In order to improve slide, make bushing surface and transverse link collar interior wet with soap water when inserting the transverse link bushing.

3. Fit the transverse link bushing to the transverse link collar by the use of a transverse link bushing replacer set (special tool ST36720000). In order to unify distances from the transverse link collar end surface to the bushing inner tube for both sides, the following instructions apply:

(1) When fitting the transverse link bushing, use special tools ST36721000, ST36722000, and ST36723000, and be sure to face 8.0 mm (0.3150 in) side of hollow part of the special tool ST36723000 upward, as shown in Figure FA-53.

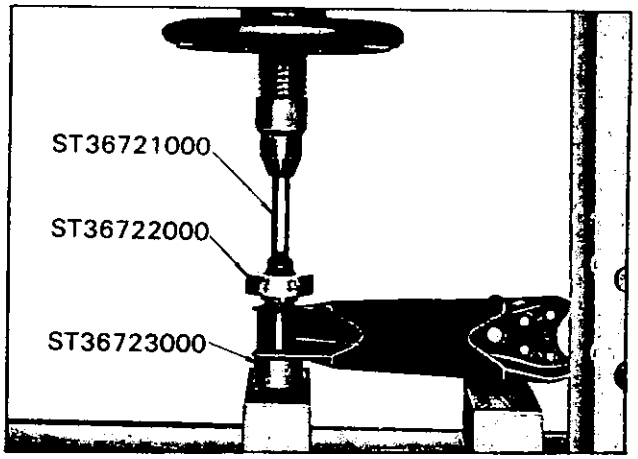
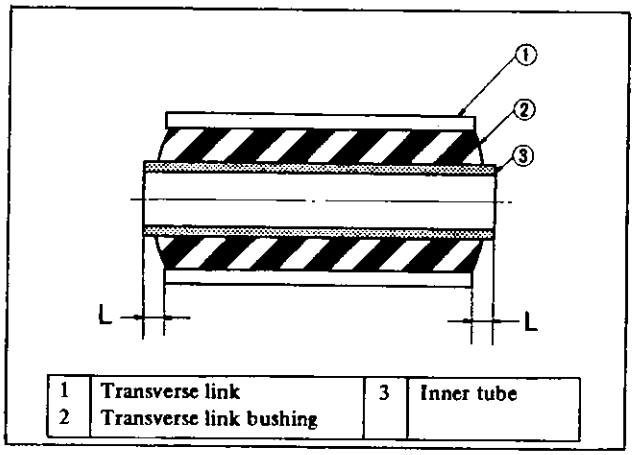


Fig. FA-53 Installing transverse link bushing

(2) Finely adjust distances (L) between both side transverse link collar end surfaces and bushing inner tubes so that they are evenly aligned.



1	Transverse link	3	Inner tube
2	Transverse link bushing		

Fig. FA-54 Transverse link and transverse link bushing installation

4. Install the lower ball joint on the transverse link, and tighten lower ball joint installation bolt to 2.2 to 3.0 kg-m (15.9 to 21.7 ft-lb).

5. Install the knuckle arm on the lower ball joint, and tighten ball joint castle nut to 5.5 to 7.4 kg-m (39.8 to 53.5 ft-lb). Apply a cotter pin, and bend it correctly.

Note: a. Before installing the knuckle arm, clean the knuckle arm installation hole and ball joint stud.

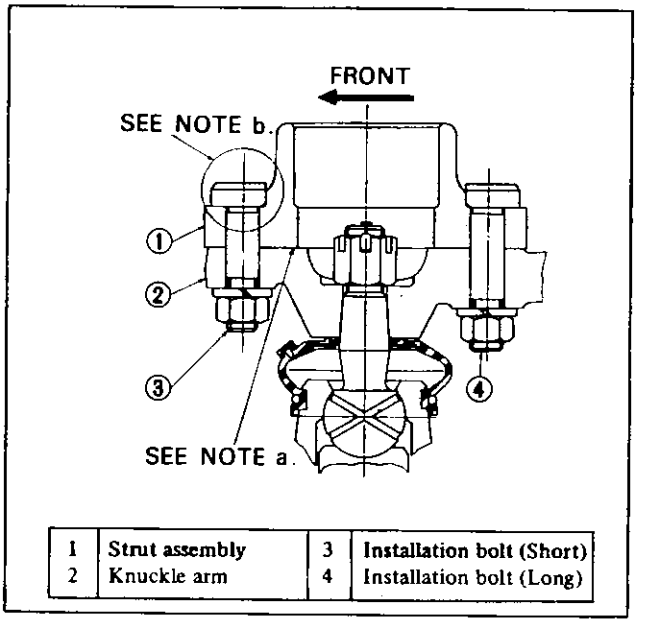
b. When the ball joint castle nut is tightened to the rated torque, apply seal agent to circumference of the ball joint castle nut to protect the nut from rust (preventing occurrence of rust).

6. Install the knuckle arm beneath the strut assembly, and tighten installation bolt to 4.6 to 6.1 kg-m (33.3 to 44.1 ft-lb).

Note: a. Thoroughly clean the knuckle arm and installation surface on the lower portion of the strut assembly, and make sure that no oil, foreign matter, etc. are present on those parts.

b. Make sure that installation bolt head is correctly positioned, and tighten it to the rated torque.

c. Tightening bolts having different length are used. Be sure to use shorter one [length below neck: 38 mm (1.496 in)] for the front side and longer one [length below neck: 44 mm (1.732 in)] for the rear side.



1	Strut assembly	3	Installation bolt (Short)
2	Knuckle arm	4	Installation bolt (Long)

Fig. FA-55 Installing knuckle arm to strut assembly

7. Install the transverse link on the suspension cross member, and temporarily tighten them with transverse link mounting bolts.

Note: Install the transverse link mounting bolt so that the nut side is faced to the front side of the vehicle.

8. Install the tension rod and stabilizer bar connecting rod to the transverse link.

9. Jack down, remove the jack, and with the vehicle unloaded, tighten the transverse link mounting bolt to 4.0 to 5.0 kg-m (28.9 to 36.2 ft-lb).

ADJUSTMENT

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ADJUSTMENT OF WHEEL ALIGNMENT FA-21
ADJUSTMENT OF VEHICLE LEVEL FA-21
ADJUSTMENT OF TOE-IN FA-21
ADJUSTMENT OF STEERING ANGLE FA-22

1. Carry out wheel alignment on a flat surface with tire air pressure adjusted to the normal pressure.

2. Thoroughly check all component parts of the steering and suspension systems, and repair or replace defective parts before starting the wheel alignment.

3. The camber and caster angles are preset and cannot be adjusted. Adjust the toe-in and vehicle level only.

ADJUSTMENT DATA

Wheel alignment (unladen)

	Sedan Coupe	Wagon	Van
Camber	35' to 1°35'	45' to 1°45'	45' to 1°45'
Caster	1°10' to 2°10'	1°05' to 2°05'	40' to 1°40'
Toe-in ..... mm (in)	4 to 6 (0.16 to 0.24)	5 to 7 (0.20 to 0.28)	5 to 7 (0.20 to 0.28)
King pin inclination	7°55'	7°45'	7°45'
Steering angle In	43°	43°	43°
Out	36°	36°	36°
Normal tire pressure (When not heated) 6.00-12-4PR kg/cm^2(psi)	1.5 (22)	1.5 (22)	1.5 (22)

ADJUSTMENT OF WHEEL ALIGNMENT

1. Use a turning radius gauge and alignment gauge for the measurement.

2. Carry out wheel alignment on a flat surface with tire air pressure adjusted to the normal pressure.

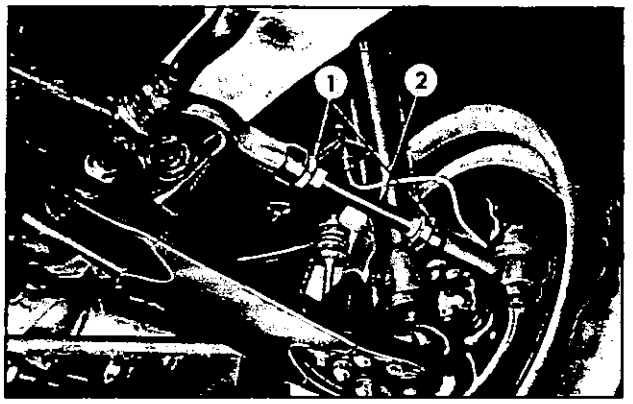
ADJUSTMENT OF VEHICLE LEVEL

Vehicle level is adjusted by changing springs.

ADJUSTMENT OF TOE-IN

1. Measure toe-in with a toe-in gauge.

2. Loosen the nut indicated by arrow mark in Figure FA-56, and adjust the side rod adjusting bar so that distance (L) between both side side rod ball joint centers is 296.8 mm (11.7 in).



1	Locking nut	2	Side rod adjusting bar

Fig. FA-56 Adjusitng toe-in

ADJUSTMENT OF STEERING ANGLE

1. Place the front wheels on turn table.

2. Adjust both side steering angle adjusting bolts (indicated by arrow mark), and set them at the rated steering angle.

Note: a. Make sure that clearance between tire & tension rod is 30 mm (1.181 in) or more.

b. When the clearance is less than 30 mm (1.181 in), increase the clearance by extending the stopper bolt. Upon completion of the adjustment, maximum height of the stopper bolt should be 27.5 mm (1.083 in).

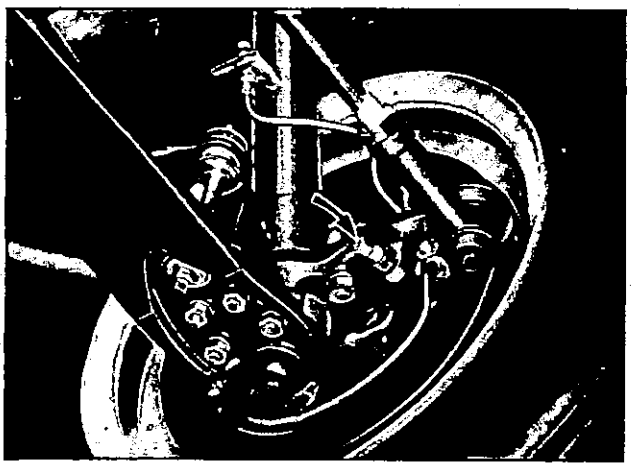


Fig. FA-57 Steering angle adjusting bolt

SERVICE DATA AND SPECIFICATIONS

Wheel alignment (unladen)

		Sedan Coupe	Wagon	Van
Camber		35' to 1°35'	45' to 1°45'	45' to 1°45'
Caster		1°10' to 2°10'	1°05' to 2°05'	40' to 1°40'
Toe-in	mm (in)	4 to 6 (0.16 to 0.24)	5 to 7 (0.20 to 0.28)	5 to 7 (0.20 to 0.28)
King pin inclination		7°55'	7°45'	7°45'
Steering angle	In	43°	43°	43°
	Out	36°	36°	36°

Coil spring

Wire diameter	mm (in)	10 (0.394)
Coil outer diameter	mm (in)	110 (4.33)
Coil turns		7.7
Coil effective turns		6.25

Free length	mm (in)	338 ± 10 (13.3 ± 0.394)
Installed height/load	mm (in)/kg	203 ±5 (7.99 ±0.1969)/ 200 (441)
Spring constant	kg/mm (lb/in)	1.62 (90.7)

Strut assembly

Strut outer diameter	mm (in)	45 (17.7)
Piston rod diameter	mm (in)	18 (0.709)
Piston diameter	mm (in)	25 (0.984)
Damping force at piston speed 0.3 m/sec.		
Expansion	kg (lb)	48 (106)
Compression	kg (lb)	22 (48.5)
Piston rod		
Bend limit	mm (in)	0.1 (0.0039)
Wear limit	mm (in)	0.025 (0.0010)
Piston cylinder		
Bend limit	mm (in)	0.2 (0.0079)
Wear limit (inside)	mm (in)	0.1 (0.0039)
Stabilizer bar diameter	mm (in)	17 (0.669)

Front wheel bearing rotation starting torque	kg-cm (in-lb)	18 to 23 (15.6 to 20.0)
Ball joint shaking torque	kg-cm (in-lb)	35 to 60 (30.4 to 52.1)
Ball joint end play (axial direction)	mm (in)	0.3 to 1.0 (0.0118 to 0.0394)

TIGHTENING TORQUE

Front axle	kg-m (ft-lb)
Brake disc rotor and hub assembly tightening torque	4.4 to 6.0 (31.8 to 43.4)
Wheel bearing lock nut	2.2 to 2.4 (15.9 to 17.4)
Disc brake caliper fixing bolt	4.6 to 6.1 (33.3 to 44.1)
Buffle plate installation screw	0.3 to 0.4 (2.1 to 2.9)
Brake disc assembly installation bolt	2.7 to 3.7 (19.5 to 26.8)

Strut assembly

- Gland packing tightening torque ..... 8.0 to 11.0 (57.8 to 79.5)
- Piston rod self-locking nut ..... 3.6 to 4.5 (26.0 to 32.5)
- Self-locking nut used to install the strut assembly on the body ..... 1.6 to 2.1 (11.6 to 15.2)

Transverse link and ball joint

- Bolts used to install the knuckle arm to strut ..... 4.6 to 6.1 (33.3 to 44.1)
- Ball joint castle nut ..... 5.5 to 7.4 (39.8 to 53.5)
- Bolts used to install the transverse link to ball joint ..... 2.2 to 3.0 (15.9 to 21.7)
- Transverse link mounting bolt ..... 4.0 to 5.0 (28.9 to 36.2)

Tension rod

- Transverse link side ..... 2.2 to 3.0 (15.9 to 21.7)
- Body side ..... 4.5 to 5.5 (32.5 to 39.8)

Stabilizer bar

- Connecting rod and transverse link installation nut ..... 0.9 to 1.2 (6.5 to 8.7)
- Connecting rod and stabilizer bar installation nut ..... 0.9 to 1.2 (6.5 to 8.7)
- Stabilizer bar and body installation bolt ..... 0.9 to 1.2 (6.5 to 8.7)

TROUBLE DIAGNOSES AND CORRECTION

Troubles	Possible causes	Remedies
Vibration, shock and shimmying of steering wheel **Vibration**: Loose connection of the serration parts and rubber coupling parts, defective rubber coupling and wear of each part of linkage and vibration of front wheels are, in many cases, transmitted to the steering wheel. This is very noticeable when travelling over rough road. **Shock**: When the front wheels are travelling over bumpy roads, the play of the steering linkage is transmitted to the steering wheel. This is especially noticeable when travelling rough road.	Improper air pressure of tire.	Adjust.
	Unbalance and deformation of road-wheel.	Correct the unbalance or replace.
	Unevenly worn tire or insufficient tightening.	Replace or tighten.
	Improperly adjusted or worn front wheel bearing.	Adjust or tighten.
	Faulty wheel alignment.	Adjust.
	Worn fitting transverse link bushings.	Replace.
	Insufficiently tightened steering gear housing.	Retighten.
	Wear of steering linkage.	Replace defective parts.

Shimmying: Abnormal vibrations of the front suspension group and the whole steering linkage, which occur when a specific speed is attained.	Worn suspension ball-joint.	Replace.
	Excessive backlash due to improper adjustment of the retainer parts.	Adjust correctly.
	Worn column bearing, weakened column bearing spring, or loose clamp.	Check and repair correctly.
	Malfunction of shock absorber (inside the strut) or loose installation bolts.	Replace or retighten.
	Unbalance of vehicle level.	Correct the unbalance.
Vehicle pulls to right or left. When driving with hands off the steering wheel over a flat road, the vehicle gently swerves to right or left. **Note: A defective rear suspension may also be the cause of this trouble and, therefore, see also the chapter dealing with the rear suspension.**	Improper air-pressure of tire or insufficient tightening of wheel nuts.	Adjust or tighten.
	Difference in height of right and left tire treads.	Replace tires.
	Incorrect adjustment or abrasion of front wheel bearing.	Adjust or replace.
	Collapsed or twisted front spring.	Replace.
	Incorrect wheel alignment.	Adjust.
	Incorrect brake adjustment (binding).	Adjust.
	Worn rubber bushings for transverse link and tension rod.	Replace.
	Deformed of steering linkage and suspension link	Replace.
	Unbalanced vehicle level	Correct the unbalance.
Instability of vehicle	Improper air pressure of tire.	Adjust.
	Worn rubber bushings for transverse link and tension rod.	Adjust.
	Incorrect wheel alignment	Adjust.
	Worn or deformed steering linkage and suspension link	Replace.
	Incorrect adjustment of steering gear	Adjust.
	Deformed unbalanced wheel	Correct or replace.
Stiff steering wheel (checking up procedure) Jack up front wheels, detach the steering gear and operate the steering wheel, and;	Improper air pressure of tire.	Adjust.
	Insufficient lubricants or mixing impurities in steering linkage or excessively worn steering linkage.	Replenish grease or replace the part.

If it is light, check steering linkage, and suspension groups. If it is heavy, check steering gear and steering column groups.	Stiff or damaged suspension ball-joint, or lack of grease	Replace.
	Worn or incorrectly adjusted wheel bearing.	Replace or adjust.
	Worn damaged steering gear and bearing	Replace.
	Incorrectly adjusted steering gear	Adjust.
	Deformed steering linkage	Replace.
	Incorrect wheel alignment	Adjust.
	Damaged strut upper end bearing	Replace.
	Damaged or stiff piston or shock absorber rod (in the strut)	Replace.
	Interference of steering column with turn signal switch	Adjust.
Excessive steering wheel play	Incorrectly adjusted steering gear housing	Adjust.
	Worn steering linkage	Replace.
	Improperly fitted of gear box	Retighten.
	Incorrectly adjusted wheel bearing	Adjust.
	Worn transverse link and tension rod fitting bushings	Replace.
Noises	Improper air pressure of tire	Adjust.
	Insufficient lubricating oil and grease for suspension ball joint and steering linkage, or their breakage	Replenish lubrication oil and grease, or replace.
	Loose steering gear bolts, linkage and suspension groups.	Retighten.
	Defective shock absorber (inside the strut)	Replace.
	Defective wheel bearing	Replace.
	Worn steering linkage	Replace.
	Worn transverse link and tension rod fitting bushings	Replace.
	Broken collapsed coil spring	Replace.
	Loose strut mounting insulator tightening nuts	Retighten.

Grating tire noise	Improper air pressure of tire	Adjust.
	Incorrect wheel alignment	Adjust.
	Deformed knuckle spindle and suspension linkage	Replace.
Jumping of disc wheel	Improper air pressure of tire	Adjust.
	Unbalanced wheels	Adjust.
	Defective shock absorber	Replace.
	Defective tire	Replace.
	Deformed wheel rim	Replace.
Excessively or partially worn tire	Improper air pressure of tire	Adjust.
	Incorrect wheel alignment	Adjust.
	Defective wheel bearing	Replace.
	Incorrect brake adjustment	Adjust.
	Improper tire shifting (rotation)	Adjust.
	Rough and improper driving manner	Drive more gently.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION RA

REAR AXLE & REAR SUSPENSION

RA

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REAR AXLE

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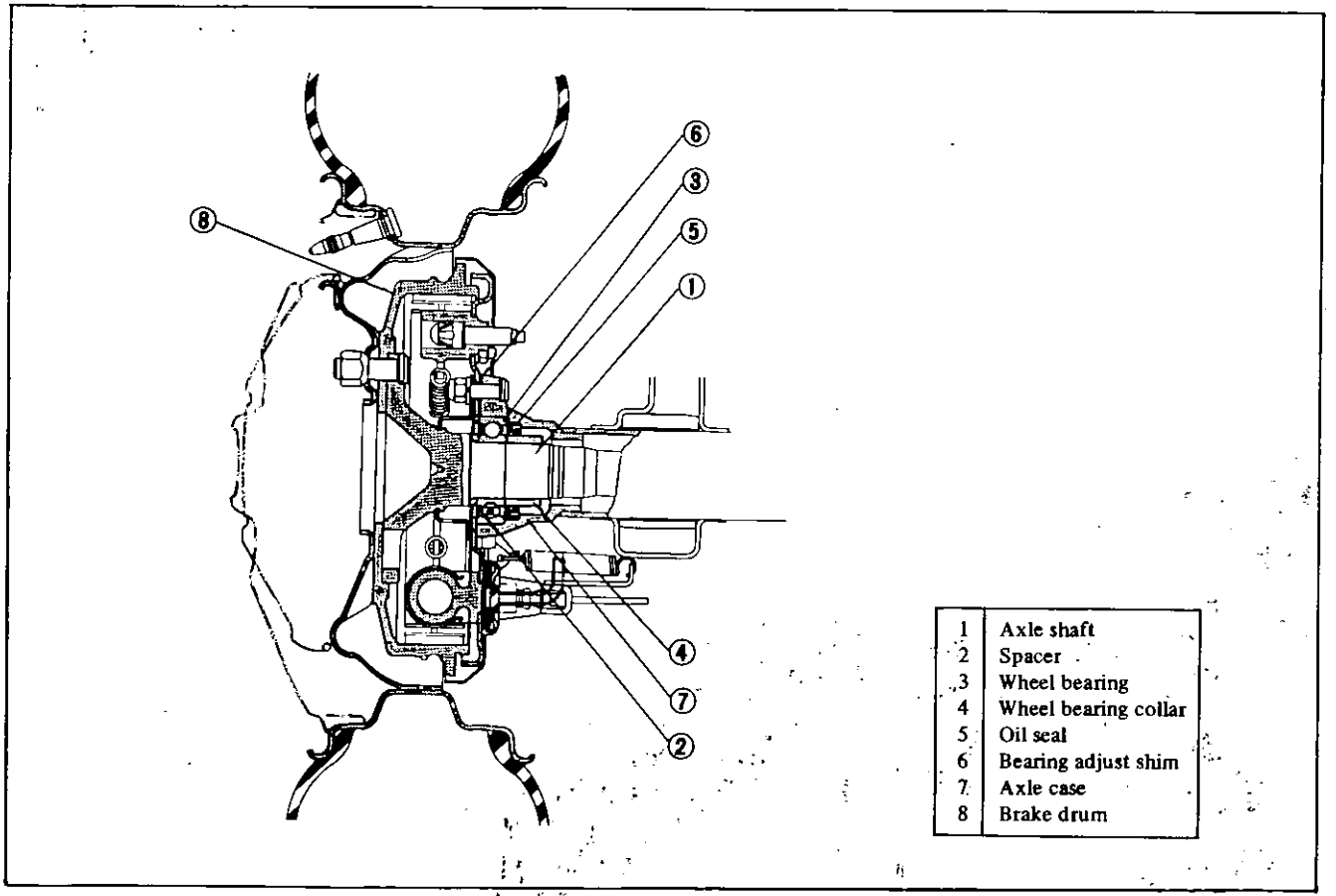

Fig. RA-1 Sectional view of rear axle

DESCRIPTION

The rear axle is of a semi-floating type. The axle housing is a press steel "Banjo" type housing. It is light in weight and is sufficiently strong to withstand all torsional and bending loads.

The rear wheel bearings are of presealed types. Therefore, no frequent lubricating service is required. However, when the rear axle is disassembled, the wheel bearings should be packed with an approved grease prior to the reinstallation, being careful not to damage the sealing rubber.

REAR AXLE SHAFTS

Removal

1. Apply wheel chocks on front wheels, jack up the rear of the vehicle, and support it on stands.

2. Remove the wheel cover and nuts. Remove the road wheel and brake drum. If brake linings should hold the drum, slacken off the brake shoe adjuster a few notches.

3. Disconnect the brake pipe ① from the wheel cylinder. Plug up the open end of the brake pipe with a plastic cover or wooden peg to prevent foreign matters from entering the hydraulic line.

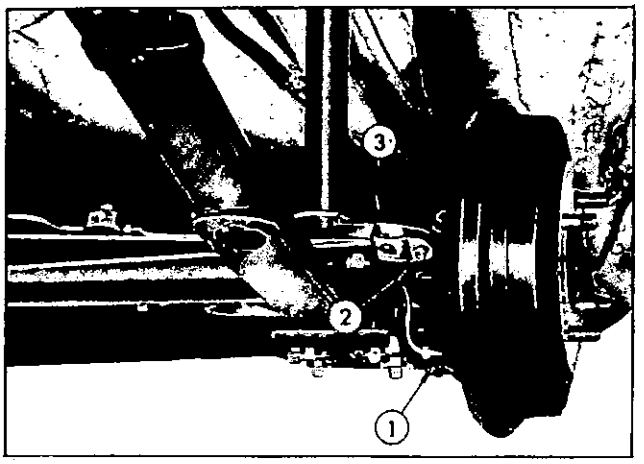

Fig. RA-2 Disconnecting brake line

4. Straighten the cotter pin ② and remove it. Remove clevis pin and disconnect the hand brake cable from the hand brake lever. Remove the hand brake return spring ③.

5. Remove the four bolts securing the brake back plate to the axle housing. Draw out the axle shaft assembly together with the brake back plate, using sliding hammer (ST36230000) and rear axle stand (ST07640000).

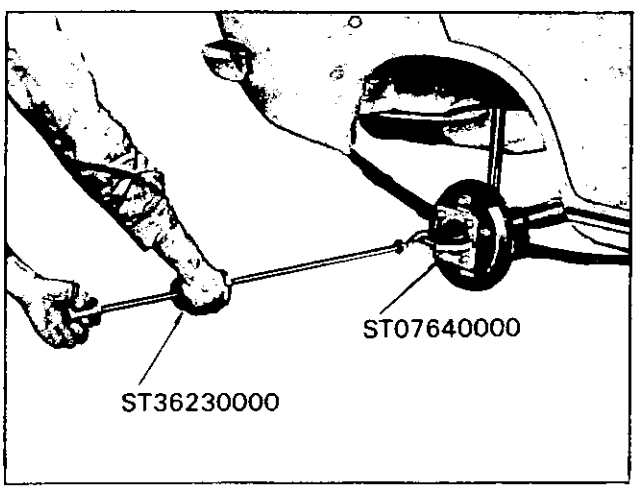

Fig. RA-3 Removing axle shaft

6. If either the axle shaft or rear wheel bearing is to be replaced, remove the bearing locking collar by nicking it deeply with a cold chisel in several places. It will then slide easily. Be careful not to damage the axle shaft with the chisel. Set the bearing remover (ST37130000), and remove the wheel bearing. The removed bearing collar should be discarded and should not be reused.

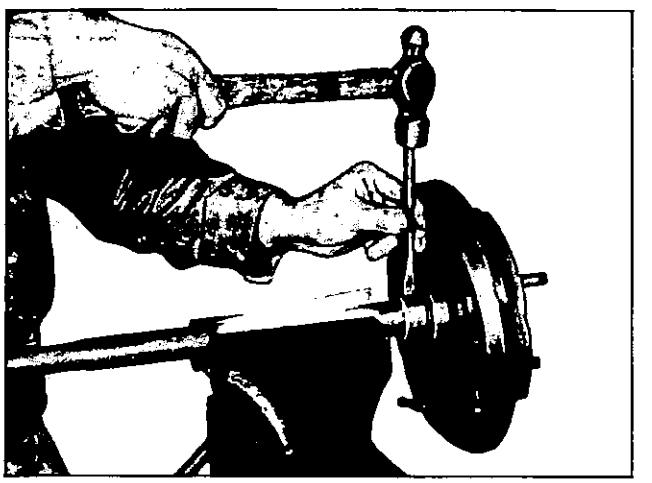

Fig. RA-4 Removing bearing collar

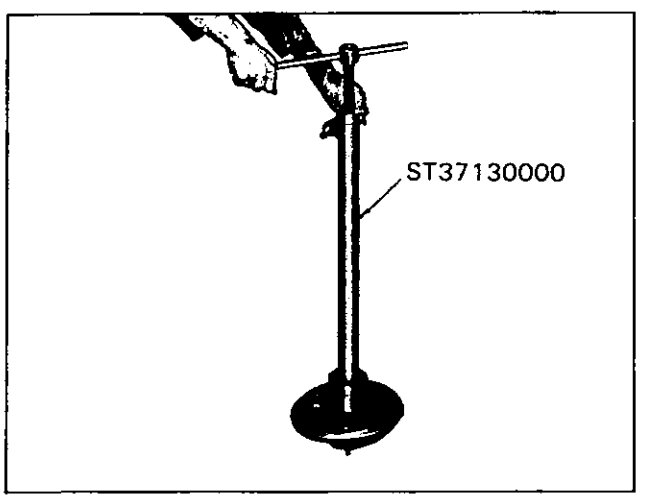

Fig. RA-5 Removing wheel bearing

7. It is recommendable that the oil seal be replaced whenever the rear axle shaft is replaced. To remove the oil seal, use a suitable bar such as a screwdriver.

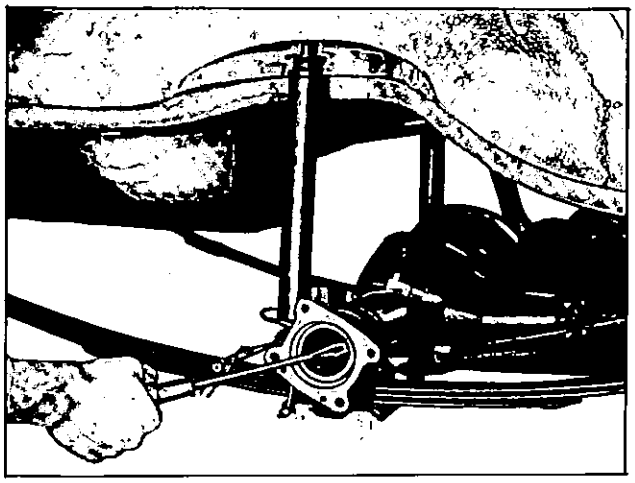

Fig. RA-6 Removing oil seal

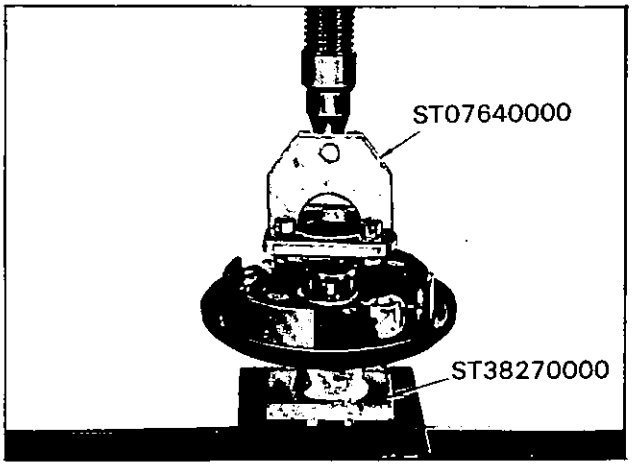

Fig. RA-7 Install wheel bearing

Inspection

1. Inspect the machined surface of the axle shaft and the axle housing for rough spots or other irregularities which affect the sealing action of the oil seal.

2. Check the axle shaft for straightness, cracks, damage, wear and distortion. The bend amount should be less than 0.3 mm (0.118 in).

Note: Do not attempt to straighten a bend shaft by heating.

Assembly

Assemble the rear axle in reverse sequence of removal, noting the following points.

1. Place the bearing spacer, wheel bearing and bearing collar on the axle shaft, and press them on the shaft with a force of 3 to 5 tons, using a press stand (ST38270000).

Note: A new rear wheel bearing should be packed with specified MP-2 grease.

2. Install the oil seal in place on the axle housing flange.

Note: When the axle shaft is replaced, the new oil seal must be used. Be sure to apply MP-2 grease between lips of the oil seal.

3. Install the rear axle shaft into the axle housing. Check the clearance between the wheel bearing and housing and face. If this clearance is exceeding the limit of 0 to 0.1 mm (0 to 0.0039 in), adjust it by changing the adjusting shim having proper thickness.

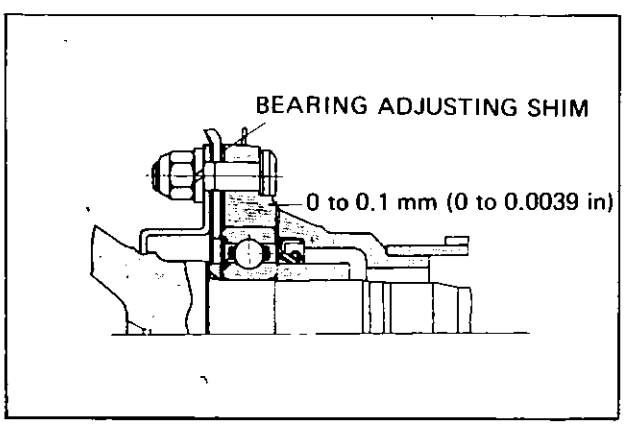

Fig. RA-8 Wheel bearing-to-housing end face clearance

4. Tighten the brake back plate-to-housing flange bolts and nuts with a torque of 1.5 to 2.0 kg-m (10.8 to 14.5 ft-lb). Check the rear axle shaft end play as shown in Figure RA-9. The end play should be less than 0.1 mm (0.0039 in).

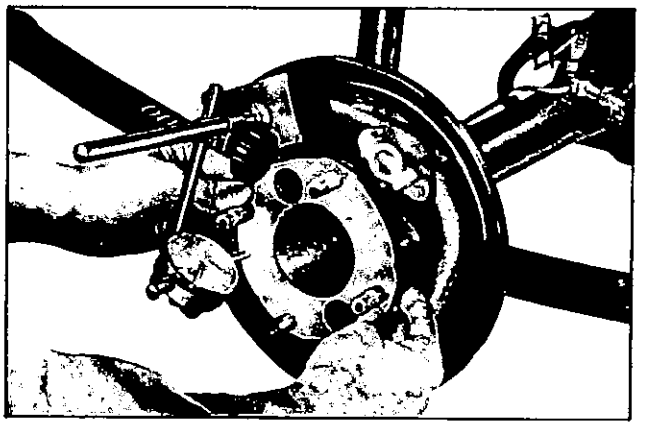

Fig. RA-9 Checking axle shaft end play

REAR SUSPENSION

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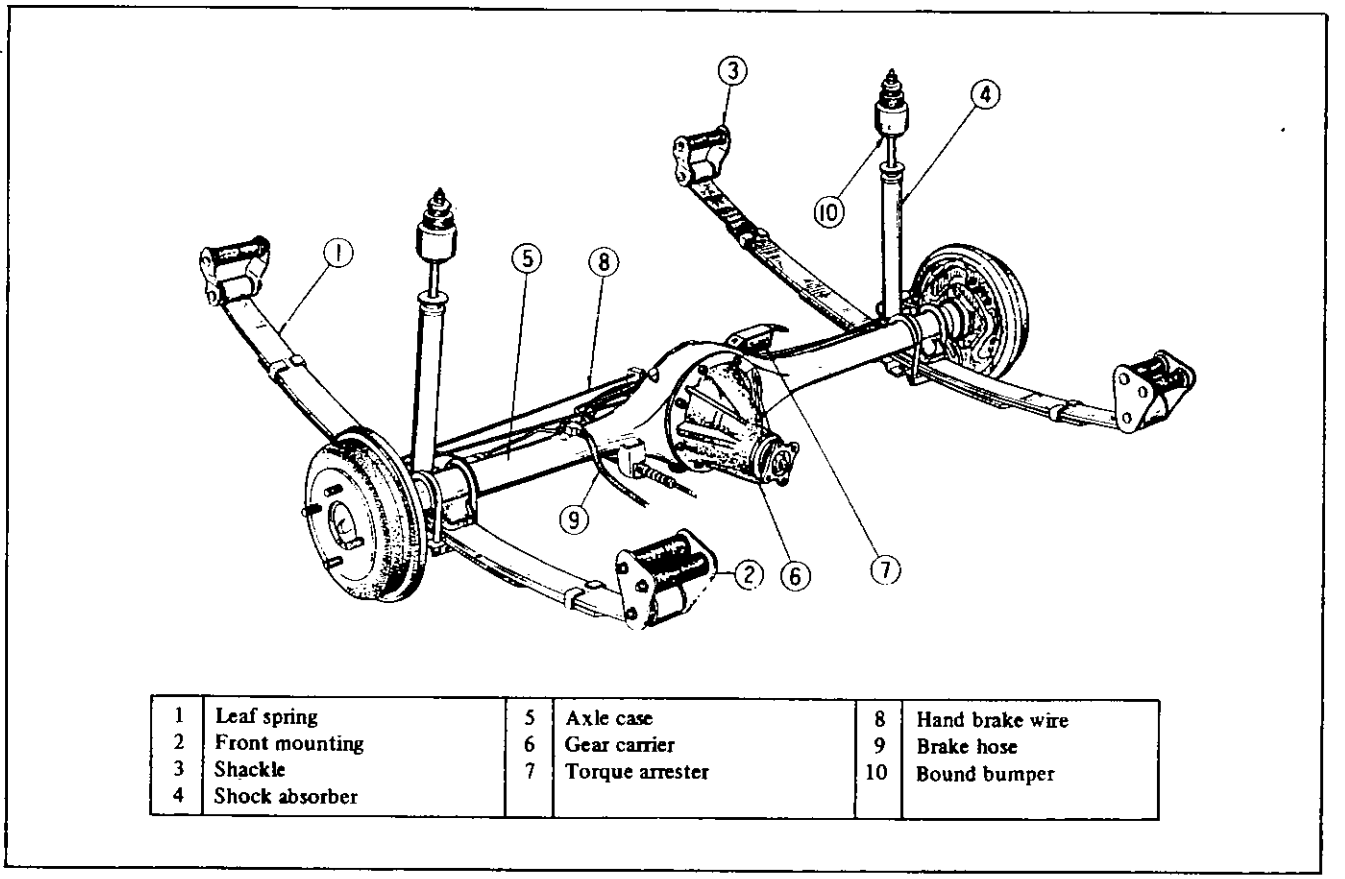

1	Leaf spring	5	Axle case	8	Hand brake wire
2	Front mounting	6	Gear carrier	9	Brake hose
3	Shackle	7	Torque arrester	10	Bound bumper
4	Shock absorber				

Fig. RA-10 Rear suspension

DESCRIPTION

Rear suspension consists of semi-elliptic leaf springs, telescopic hydraulic shock absorbers and rubber bumpers.

The rear spring center-pin is off-set 110 mm (4.33 in) toward the front from the center of the spring. This is done to reduce spring wind-up and to decrease the arc while the rear wheel swings through. Thereby minimizing the possibility of the rear suspension effecting vehicle stability.

Iso-clamp devices are used for attaching the axle housing to the spring.

The leaf springs, shock absorbers and rear axle housing are mounted on rubber bushings at each end to minimize noise and vibration of the transmission to the car body and passenger compartment.

REAR SPRING

Removal

1. Jack up the center of the rear axle until the wheels are clear from the ground. Support the rear end of the frame on stands.

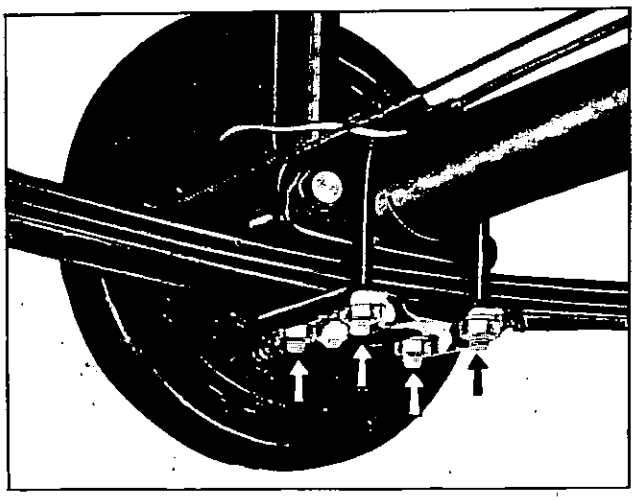

Fig. RA-11 Rear spring U-bolts

2. Disconnect the shock absorber bottom end from the spring lower seat.

3. Support the rear axle housing with a jack.

4. Loosen the lock nuts of the rear spring U-bolt and remove the bolts, spring seat location plates and seat pads.

5. Loosen the three fixing nuts securing the front bracket, remove the front bracket from the leaf spring front eye and car body and lower the rear spring.

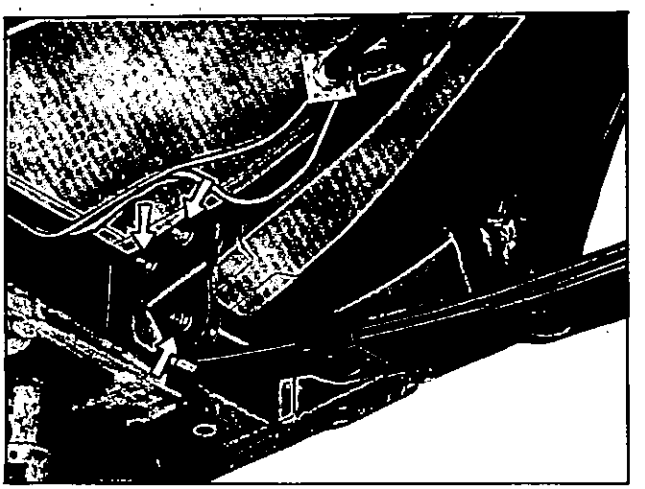

Fig. RA-12 Rear spring front bracket

6. Remove upper and lower nuts of the rear shackle.

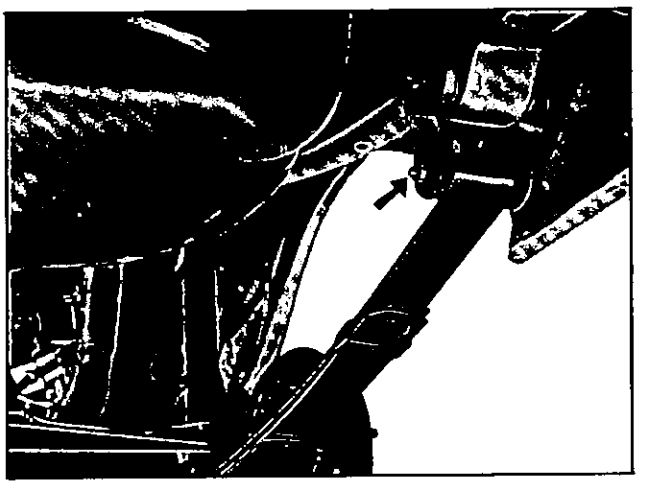

Fig. RA-13 Shackle

Inspection and repair

1. Examine the spring leaves for fractures or cracks.

2. Test spring and compare with the specifications given in "Service Data and Specifications". If the spring is found defective, replace with a new assembly.

3. Check the front pin, shackle, U-bolts and spring seat

for wear, cracks, straightness and damaged threads. If defective parts are found, replace with new ones.

4. Inspect all rubber parts for wear, damage, separation and deformation. Replace them, if necessary.

Installation

Install the rear spring in reverse sequence of removal, noting the following matters.

1. Coat the front bracket pin, front bracket bushing, shackle pin and shackle bushing with a soap solution prior to assembly.

2. The front pin securing nut and shock absorber lower end securing nut should be tightened with the vehicle unladen.

Note: Make sure that the flange of the shackle bushing is clamped evenly on both sides.

REAR SHOCK ABSORBER

Replacement

1. Jack up the center of the rear axle and support the axle housing with stands.

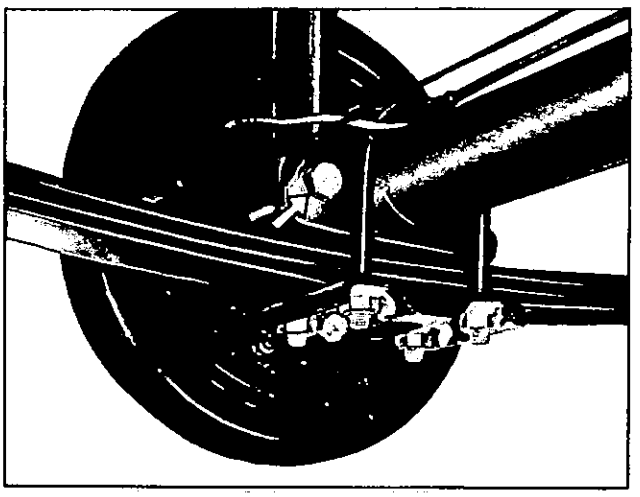

Fig. RA-14 Removing the shock absorber lower end

2. Remove the lower end of the rear shock absorber from the spring seat (See Figure RA-14.).

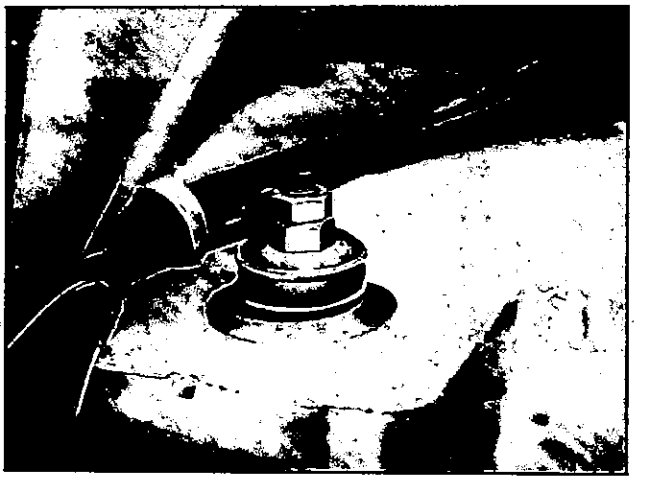

Fig. RA-15 Removing shock absorber upper bracket

3. Remove the rear shock absorber installing nut located under the rear seat back.

4. Install rear shock absorber in reverse sequence of removal.

Inspection

1. Test the shock absorber and compare with the specifications given in "Service Data and Specifications". Replace if necessary.

2. Check for leakage, cracks and the shaft for straightness.

3. Inspect the rubber bushings for damage, cracks, and excessive deformation. Replace the defective parts, if necessary.

SERVICE DATA AND SPECIFICATIONS

Shock absorber				
Applied model		Sedan	Coupe	Van
Stroke x max. length	mm (in)	167 x 506 (6.57 x 19.9)	180 x 440 (7.09 x 17.3)	180 x 468 (7.09 x 18.4)
Damping force at 0.3m/s				
Rebound	kg (lb)	58 (128)	68 (150)	90 (198)
Compression	kg (lb)	38 (83.8)	45 (99.2)	45 (99.2)
Rear spring				
Length x width x thickness - No. of leaves	mm (in)	1,110 x 50 x $\frac{6 - 1}{7 - 2}$	1,110 x 50 x $\frac{6 - 1}{7 - 2}$	1,110 x 50 x $\frac{6 - 2}{7 - 1}$ $\frac{}{11 - 1}$
		(43.7x1.97x$\frac{0.2362-1}{0.2756-2}$)	(43.7x1.97x$\frac{0.2362-1}{0.2756-2}$)	(43.7x1.97x$\frac{0.2362-2}{0.2756-1}$ $\frac{}{0.4331-11}$)
Spring constant	kg/mm(lb/in)	1.96 (109)	1.96 (109)	2.3 (128.8) when unloaded 4.2 (235.2) when loaded
Camber				
Free	mm (in)	109 ±3 (4.29 ±0.1181)	109 ±3 (4.29 ± 0.1181)	131 ±5 (5.15 ± 0.1969)
Loaded with specified load	mm (in)	11 (0.433)	11 (0.433)	11 (0.433)
Specified load	kg (lb)	192 (423)	192 (423)	295 (650)
Spring eye diameter				
Front	mm (in)	35 (1.378)	35 (1.378)	35 (1.378)
Rear	mm (in)	23 (0.906)	23 (0.906)	23 (0.906)
Rear axle				
End play	mm (in)	Less than 0.1 (0.0039)		
Rear axle end shim	mm (in)	0.1, 0.2, 0.5 (0.0039, 0.0078, 0.0195)		
Wheel bearing collar pressing force	ton (lb)	**3 to 5 (6600 to 11000)**		

Tightening torque

	kg-m (ft-lb)
Axle shaft-to-housing flange bolt nuts	1.5 to 2.0 (10.9 to 14.5)
Differential carrier-to-housing bolts	1.7 to 2.5 (12.3 to 18.1)
Spring U-bolts	3.2 to 4.0 (23.1 to 28.9)

Wheel nuts	8.0 to 9.0	(57.8 to 65.1)
Spring front brake-to-body bolt nuts		
Sedan and Coupe	1.6 to 2.0	(11.6 to 14.5)
Van	3.2 to 4.0	(23.1 to 28.9)
Spring shackle pin nuts	1.6 to 2.0	(11.6 to 14.5)
Shock absorber upper nuts		
Sedan and Van	3.6 to 4.5	(26.0 to 32.5)
Coupe	0.9 to 1.2	(6.5 to 8.6)
Shock absorber lower nuts		
Sedan and Van	3.6 to 4.5	(26.0 to 32.5)
Coupe	0.9 to 1.2	(6.5 to 8.6)
Torque arrester-to-body bolts	0.6 to 0.8	(4.3 to 5.8)

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION BR

BRAKE

BR

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BRAKE

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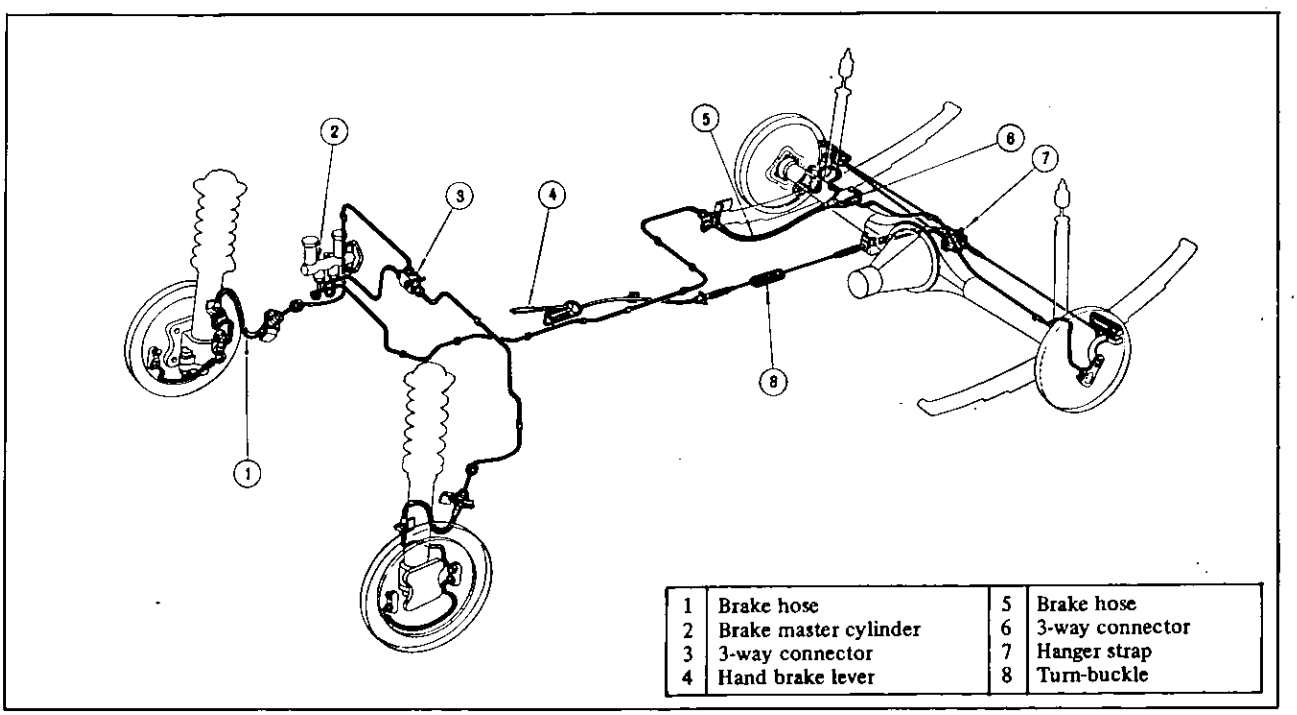


Fig. BR-1 Brake system

DESCRIPTION

The Datsun 1200 series new models adopt a hydraulic brake. Disc brake or two-leading shoe type drum brake is used for the front wheels and leading-trailing shoe type drum brake is used for the rear wheels.

With adoption of the disc brake, safety at high speed range driving is further improved.

For the master cylinder, either single type or tandem type is used. There are two types of tandem type master cylinder; one is for disc brake and the other for drum brake. Under the standard specifications, however, the tandem type master cylinder is used for disc brake and single type is used for drum brake.

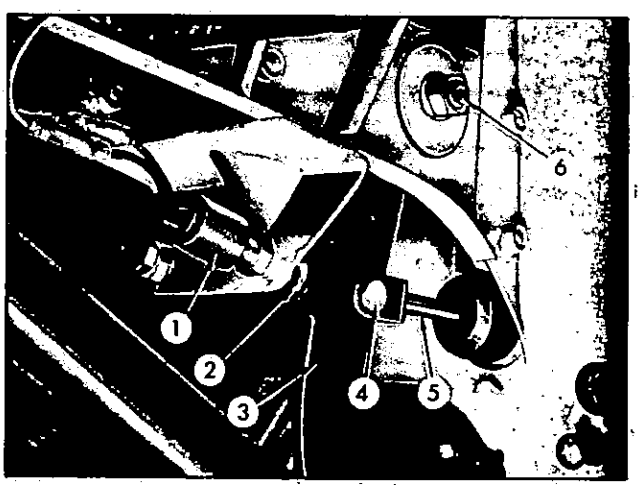
The tandem master cylinder provides a dual brake system improving safety.

The hand brake is of a mechanical type, which brakes the rear wheels through the control lever and steel wire.

The control lever is located between the driver and assistant seats, and can be operated easily.

BRAKE PEDAL

The steering column bracket supports the brake pedal. The brake pedal is installed on the steering column bracket with a fulcrum pin. The brake pedal arm and brake master cylinder push rod are joined with a clevis pin. The stop lamp switch opposes the brake pedal arm bracket, and operates as the pedal arm moves.



1	Stop lamp switch	4	Clevis pin
2	Brake pedal stopper	5	Push rod
3	Brake pedal arm	6	Fulcrum pin

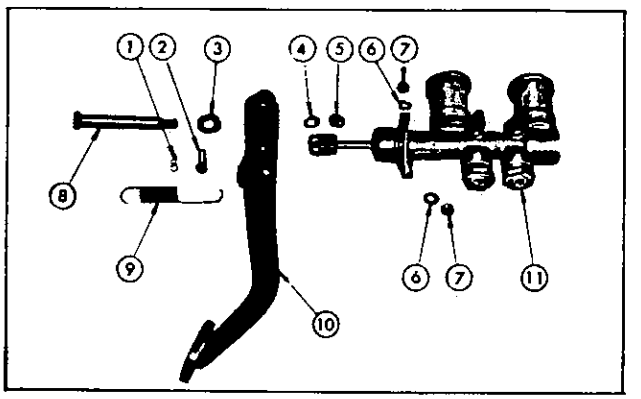
Fig. BR-2 Brake pedal installation

Removal

1. Unhook the return spring.

2. Remove the spring pin from the clevis pin which is used to connect the master cylinder push rod to the brake pedal arm, remove the clevis pin, and separate the push rod from the pedal arm.

3. Remove the fulcrum pin which is used to connect the pedal arm to the bracket, and separate the pedal arm from the bracket.



1	Spring pin	5	Nut	9	Return spring
2	Clevis pin	6	Spring washer	10	Brake pedal arm
3	Washer	7	Nut	11	Brake master cylinder
4	Spring washer	8	Fulcrum shaft		

Fig. BR-3 Brake pedal components (tandem type master cylinder)

Inspection

1. Check sliding parts for wear and the return spring for weakness.

2. Check the brake pedal for bending, warping, and crack.

3. Check other parts for serviceabilities.

Reinstallation

Reinstall the brake pedal in reverse sequence of removal, noting the following matters:

1. Grease sliding parts and return spring hook with multipurpose grease (MIL G-2108 or G10924).

2. Tighten the fulcrum pin installation nut to 2.1 to 2.9 kg-m (15.2 to 21.0 ft-lb)

TANDEM MASTER CYLINDER

The tandem master cylinder allows either front or rear brake displaying sufficient braking effect although a trouble occurs in one side of either front or rear brake, improving driving safety.

The tandem type master cylinder is manufactured by NABCO or TOKICO. When disassembling and reassembling, be careful not to mix the individual manufacturer's parts.

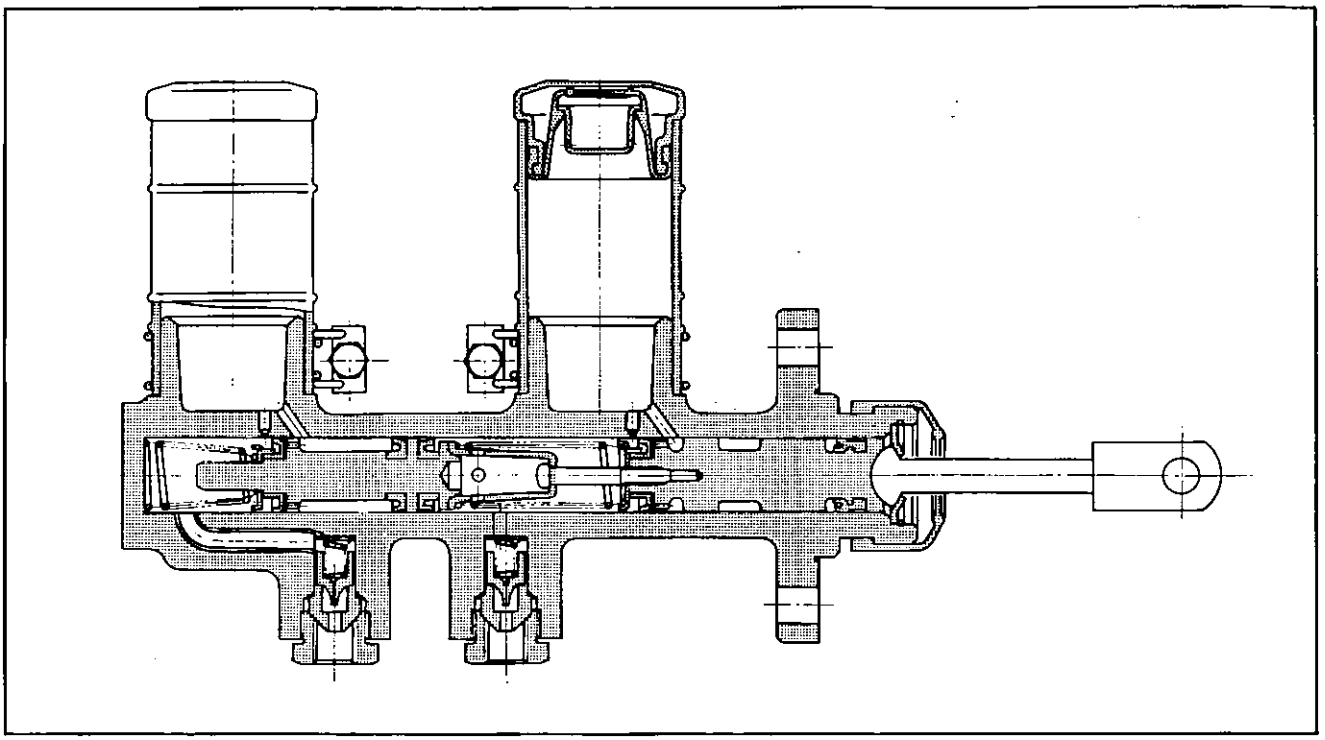


Fig. BR-4 Cross-sectional view of tandem type master cylinder

Removal

1. Remove the clevis pin, and separate the brake pedal from the master cylinder push rod.

2. Disconnect the brake tube from the master cylinder.

3. Remove the master cylinder installation bolt, remove the master cylinder shim, and remove the master cylinder assembly from the body.

Disassembly

1. Drain brake fluid, and remove the stopper bolt.

2. Remove the dust cover, remove the snap ring and stopper ring, and remove the push rod assembly.

3. Take out the piston mechanism components in order of the primary piston assembly, secondary piston assembly, and piston spring.

4. Remove the valve cap, and remove the valve assembly.

Note: Disassemble the master cylinder carefully so that the sliding surface of the piston and piston cup are not damaged. Do not remove the fluid reservoir unless really necessary. Moreover, do not remove the piston cup unless the piston is replaced.

Inspection

Thoroughly clean all disassembled parts, check for wear, damage, and other defective conditions, and replace if necessary.

Note: Do not clean rubber parts with mineral oil since they are deteriorated. Use brake fluid or alcohol. When alcohol is used, however, do not immerse

rubber parts under alcohol longer than 30 seconds. After the parts are cleaned, dry them with compressed air.

1. Check the cylinder and piston for damage and uneven wear on the sliding surface and for other defective conditions. Replace as required.

2. Replace, if the cylinder and piston clearance is more than 0.15 mm (0.006 in).

3. In principle replace the piston cup, packing and valves with new ones whenever the master cylinder is disassembled. Be sure to replace, if damaged, worn, weakened, or expanded.

4. Check the return springs for wear, damage and other defective conditions, and replace as required.

5. Replace others, if deformed, damaged, or defective.

Reassembly

Assemble the master cylinder in reverse sequence of disassembly, noting the following matters.

Apply brake fluid to the component parts such as cylinder bore, piston, etc., and carry out the operations carefully so that the component parts are not damaged or no dust and other foreign matters enter the cylinder and brake fluid reservoir. Moreover, for rubber parts such as piston cup, etc., apply rubber grease slightly.

Tightening torque

Valve cap
2.5 to 3.5 kg-m (18.1 to 25.3 ft-lb)

Bleeder screw
0.5 kg-m (3.6 ft-lb)

Stopper bolt
0.15 to 0.3 kg-m (1.1 to 2.2 ft-lb)

Reinstallation

Reinstall the master cylinder in reverse sequence of removal. After air bleeding, make sure that no brake fluid leaks from the circuit. For the pedal height adjustment, refer to the paragraph pedal adjustment.

SINGLE MASTER CYLINDER

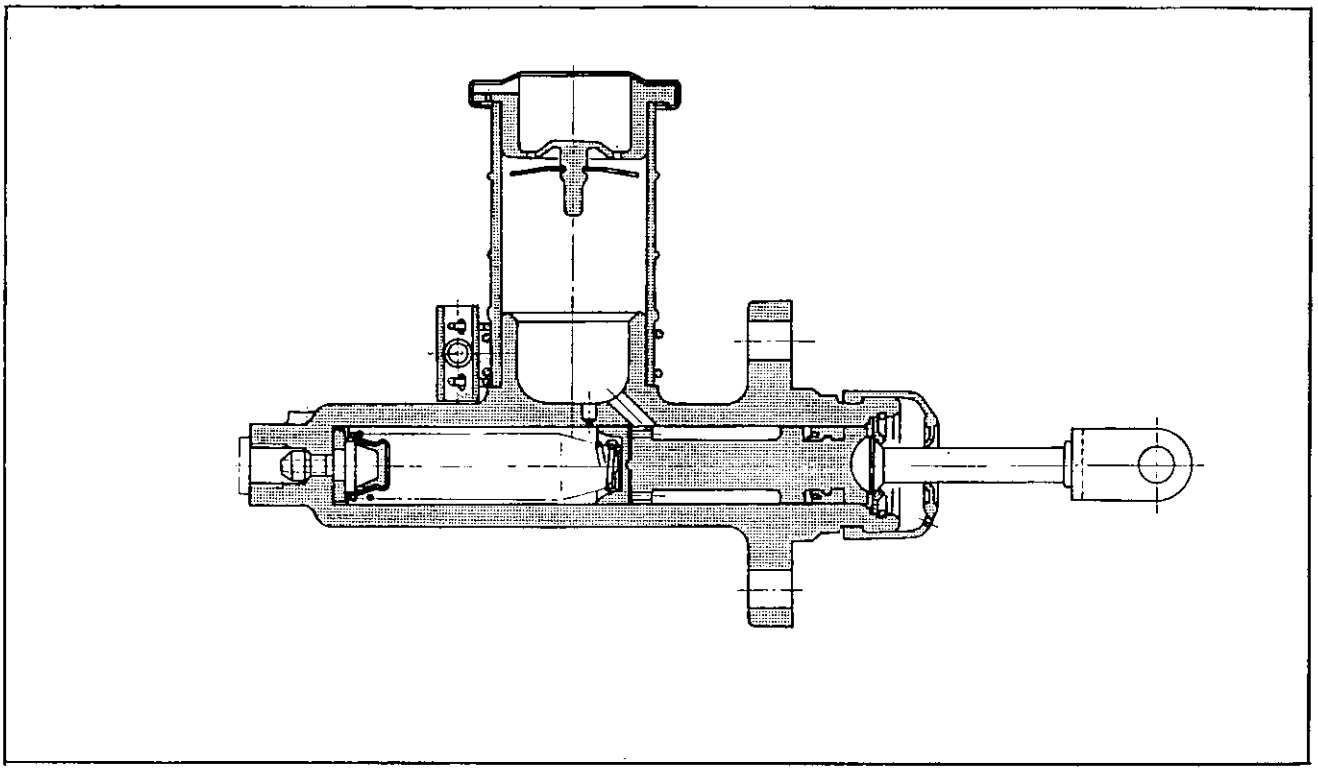


Fig. BR-5 Cross-sectional view of single master cylinder

Removal and disassembly

The single master cylinder is removed and disassembled in the same manner as the tandem type master cylinder.

Inspection

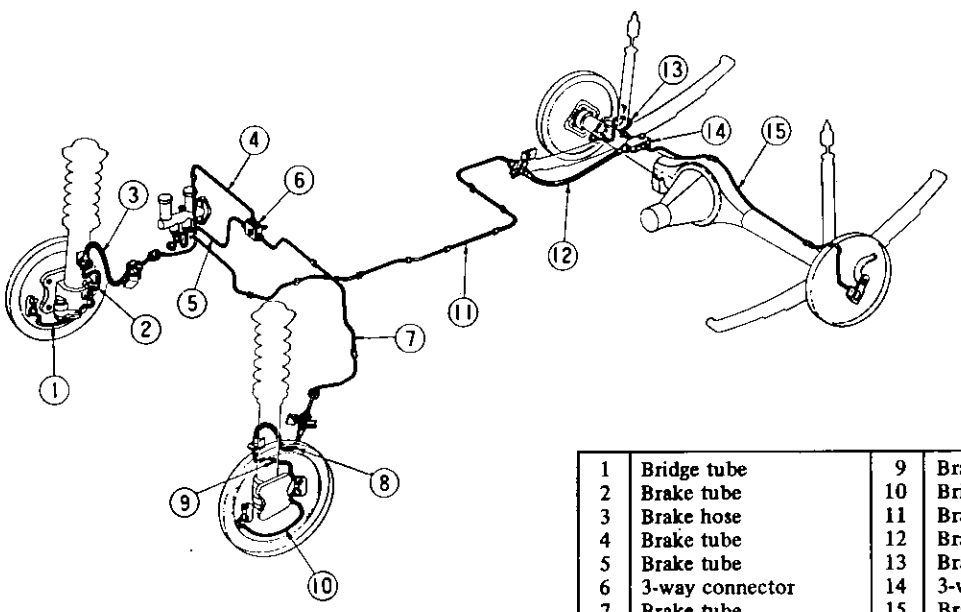
Refer to the section covering "Inspection of tandem type master cylinder".

Reassembly and reinstallation

The single master cylinder is reassembled and reinstalled in the same manner as the tandem type master cylinder.

BRAKE LINE

The brake pipe adopts a double wall construction steel tubing, and with this construction, the rigidity has been improved. Moreover, the portion of brake line laid beneath the vehicle floor is galvanized improving the corrosion resistance.

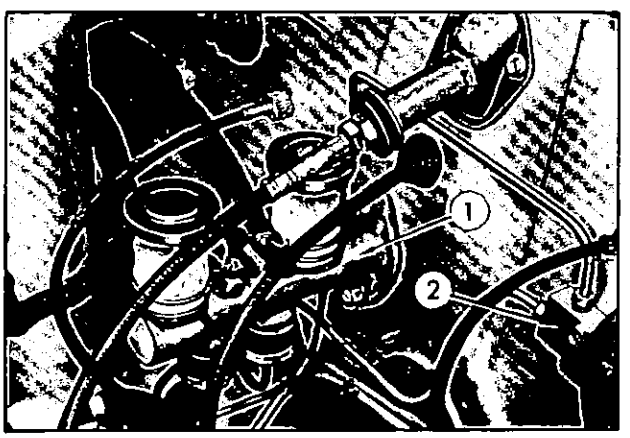


1	Bridge tube	9	Brake hose
2	Brake tube	10	Bridge tube
3	Brake hose	11	Brake tube
4	Brake tube	12	Brake hose
5	Brake tube	13	Brake tube
6	3-way connector	14	3-way connector
7	Brake tube	15	Brake tube
8	Brake hose		

Fig. BR-6 Brake line

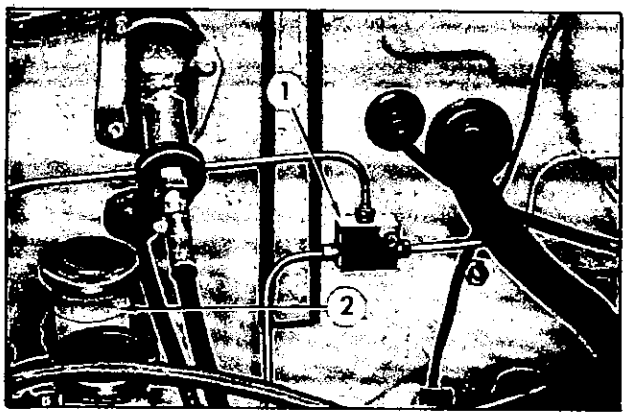
Removal

1. Remove flare nuts from both ends of the brake tube (steel tube), and remove clips used to secure the brake tube on the panel. The brake tube can be removed easily.



1	Brake master cylinder	2	Front 3-way connector

Fig. BR-7 Brake tubes around master cylinder



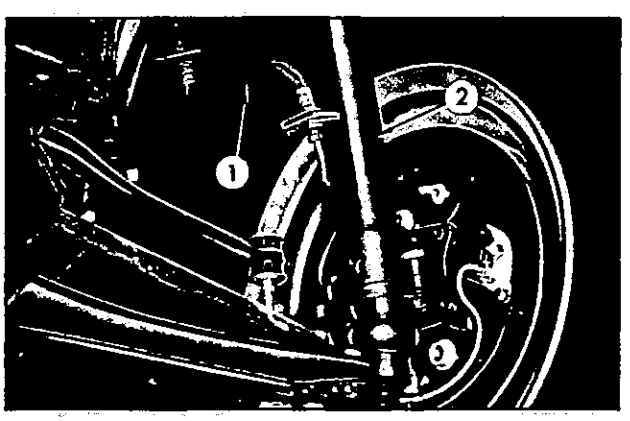
1	Front 3-way connector	2	Brake master cylinder

Fig. BR-8 Front 3-way connector

2. The brake hose (rubber hose) is used at the front strut assembly unit and rear axle housing unit. Remove the flare nut from the brake tube, and remove the hose.

1	Brake hose	3	Rear axle housing
2	Rear 3-way connector		

Fig. BR-9 Brake hose and 3-way connector around rear axle housing



1	Brake hose	2	Strut assembly

Fig. BR-10 Brake hose around front strut assembly

Inspection

1. Thoroughly clean the brake tube and brake hose, and check them for collapsing, crack, scar, and rust (brake tube), and for weakness, expansion, wear, etc. (brake hose).

Replace, if defective.

2. Remove mud and dust from the brake tube clip unit, and check the clip. If the clip covering vinyl coating is torn, repair.

Reinstallation

1. Provide a sufficient space between the brake lines and other parts so that the brake lines are not interfered with other parts due to vibration during driving.

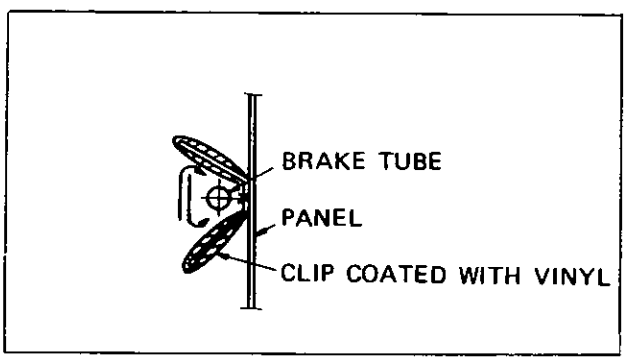


Fig. BR-11 Brake tube installation clip

2. When the brake hose is disconnected from the 3-way connector on the rear axle housing once, be sure to replace the copper packing with a new one.

3. Be careful not to warp or twist the brake hose, and particularly be careful not to interfere the brake hose with tires and suspension components.

4. Do not tighten the brake line installation flare nut forcedly or excessively.

Tightening torque

3-way connector:	1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)
Master cylinder:	1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)
Brake hose:	1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)
Air bleeder:	0.7 to 0.9 kg-m (5.1 to 6.5 ft-lb)

5. Fill the master cylinder brake fluid reservoir with brake fluid, and perform air bleeding completely.

Note: a. Do not use brake fluid other than specified.

b. The specified brake fluid is used for both single and tandem type master cylinders.

6. Upon completion of air bleeding, make sure that the brake operates correctly, and check the brake tube and hose connectors for fluid leaking. Fully depress the brake pedal, continue to depress the brake pedal for several seconds, and make sure that no brake fluid leaks from any part of the brake line. Replace defective part, if required.

Brake line pressure differential warning light switch

A warning light is located on the instrument panel to warn the driver when a pressure difference of 13 to 17 kg/cm² (185 to 242 lb/sq in) exists between the front and rear brake systems.

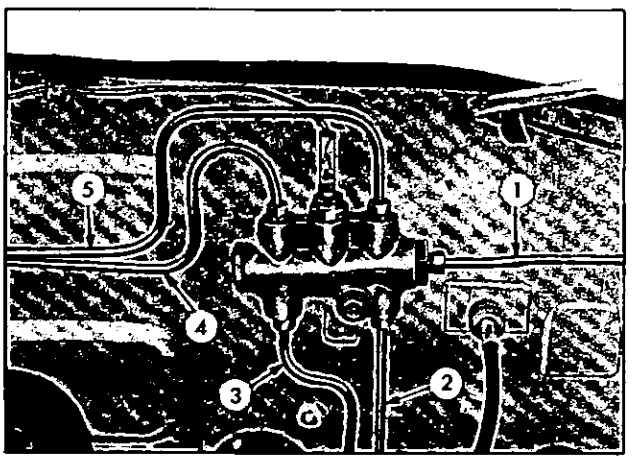
A hydraulically actuated warning light switch is located in the engine compartment. Both front and rear brake systems are connected to this switch assembly.

When a pressure difference of 13 to 17 kg/cm² (185 to 242 lb/sq in) occurs between the front and rear brake systems, the valves will shuttle toward the side with the low pressure. The valve contacts with the switch terminal, ground circuit for the warning light is completed, and thus the warning light lights.

In this case, correct the hydraulic brake problem and bleed the brakes.

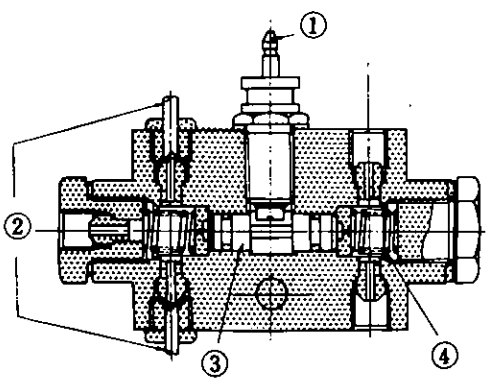
Check the warning light switch assembly for a proper operation. Check the switch assembly for fluid leakage.

Note: Do not attempt to repair switch for any reason: replace switch assembly completely.



1	To front brake L.H.	4	To rear brake L.H., R.H.
2	From master cylinder "F"	5	To front brake R.H.
3	From master cylinder "R"		

Fig. BR-12 Warning light switch



1	Wire terminal	3	Valve assembly
2	Brake tube	4	Piston load spring

Fig. BR-13 Sectional view of warning light switch

FRONT DRUM BRAKE

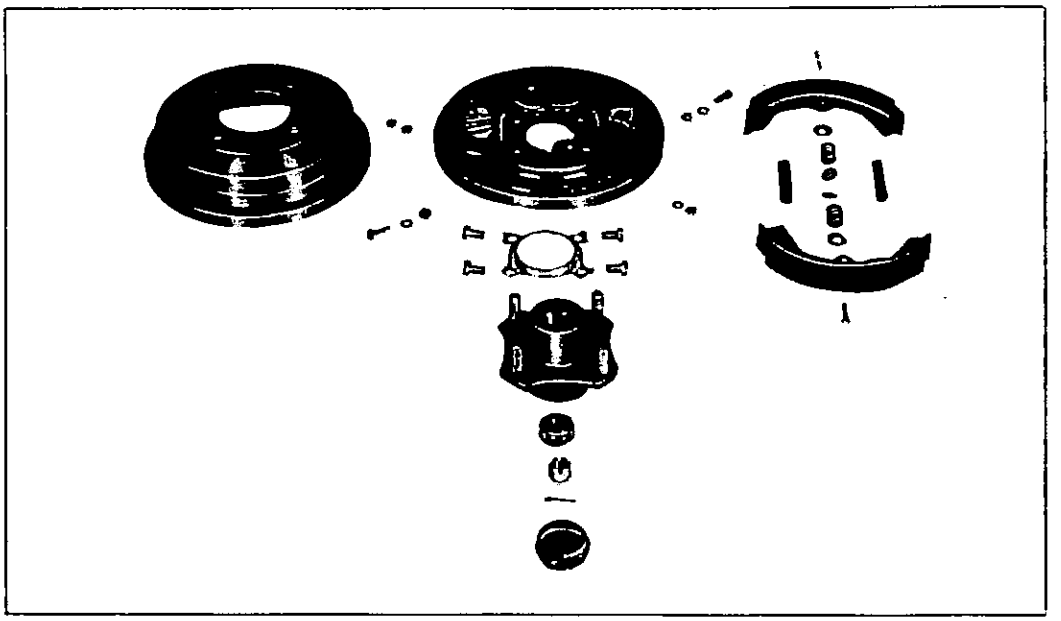


Fig. BR-14 Front drum brake components

Removal and disassembly

1. Jack up the vehicle, support with a stand, and remove the wheel cover and tire.

2. Remove the brake drum, and remove the hub cap and hub assembly from the spindle.

3. Disconnect the brake tube at the bracket unit of the strut assembly. (For the details, refer to Section FA.)

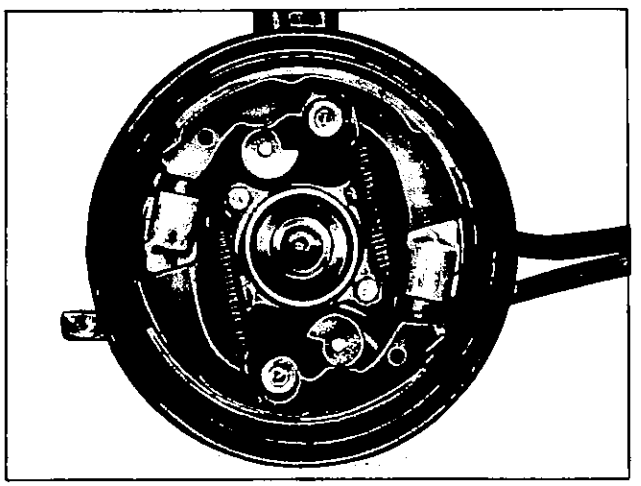
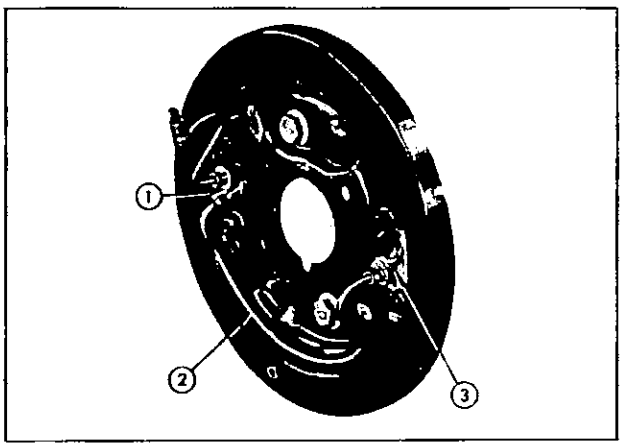


Fig. BR-15 Front drum brake

4. Unhook the return spring, and remove the brake shoe assembly.

5. Disconnect the bridge tube from the fore and after wheel cylinders.



1	After wheel cylinder	3	Fore wheel cylinder
2	Bridge tube		

Fig. BR-16 Fore and after wheel cylinders and bridge tube

6. Remove the installation bolts, and remove the fore and after wheel cylinders.

7. Remove the brake disc installation bolt, and remove the brake disc from the spindle.

8. Disassemble the wheel cylinders.

Inspection

1. Drums; If they show score, excessive out of round and so forth, reconditioning by machining is required.

Brake drum inner diameter
203.2 mm (8.00 in)

Drum inside out of roundness
Below 0.02 mm (0.0008 in)

Limit of reconditioning drum in diameter
1.0 mm (0.0394 in)

2. Linings; If brake shoe linings are incompletedly seated, soiled or greasy or deteriorated due to excessive heating, repair or replace them. If the thickness of the lining is less than 1.5 mm (0.0591 in), replace it.

Note: a. If oil or grease is found on linings, clean thoroughly with carbon tetrachloride or gasoline.

b. After installing and bonding lining, grind the lining face to a diameter equal to the brake drum.

3. Check the adjusting cams for their smooth operation.

4. Return springs; If they are considerably weak, replace them.

Return spring dimension

Wire diameter x free length - turns
3.2 x 118 mm - 20.5
(0.1260 x 4.65 in) - 20.5

Load x length
55 kg (121 lb) x 127.1 mm (5.00 in)

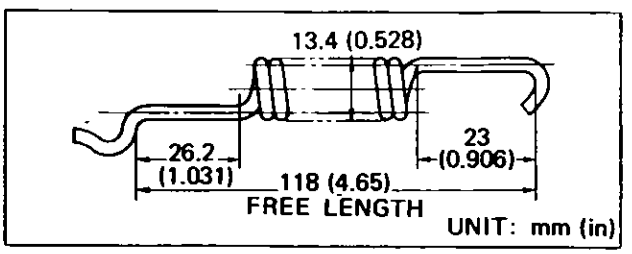


Fig. BR-17 Return spring

5. Check the brake disc for distortion.

6. Check the bore of the wheel cylinder for wear, sign of rust and damage.

If clearance between the cylinder and the piston exceeds 0.15 mm (0.0059 in), replace them.

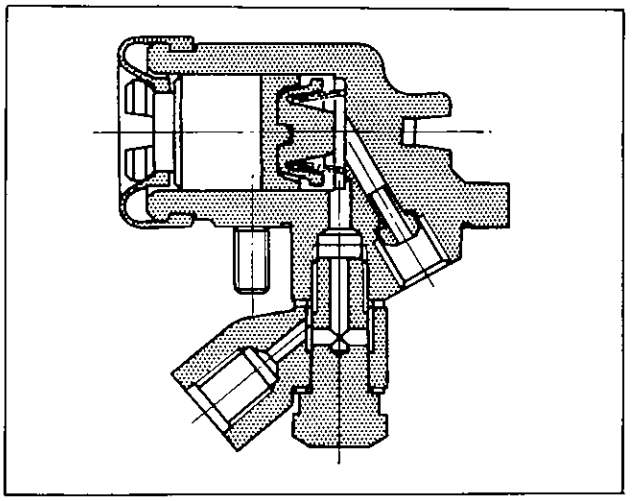


Fig. BR-18 Sectional view of front wheel cylinder

7. When the wheel cylinder is overhauled, recommend that cups be replaced even if apparently they are in satisfactory conditions. Cups must be replaced if deformed due to damage, crack, corrosion, smelling and/or aging.

Reassembly and reinstallation

The rear brake is reassembled and reinstalled in reverse sequence of disassembly and removal. However, note the following matters.

1. When assembling the wheel cylinder, be sure to apply rubber grease to the piston cup and other rubber parts slightly.

2. When installing the wheel cylinder to the brake disc, apply brake grease to the cylinder, disc, and adjusting plate sliding surfaces and to the wheel cylinder lever fulcrum portion sufficiently so that the wheel cylinder slides smoothly.

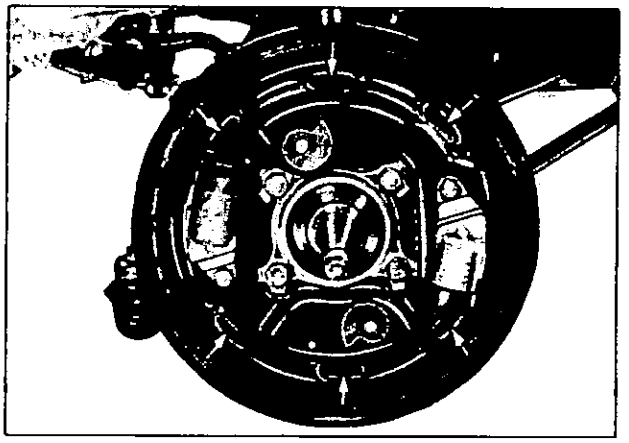


Fig. BR-19 Greasing points on brake disc

3. Tighten the brake disc installation bolt to 2.7 to 3.7 kg-m (19.5 to 26.7 ft-lb).

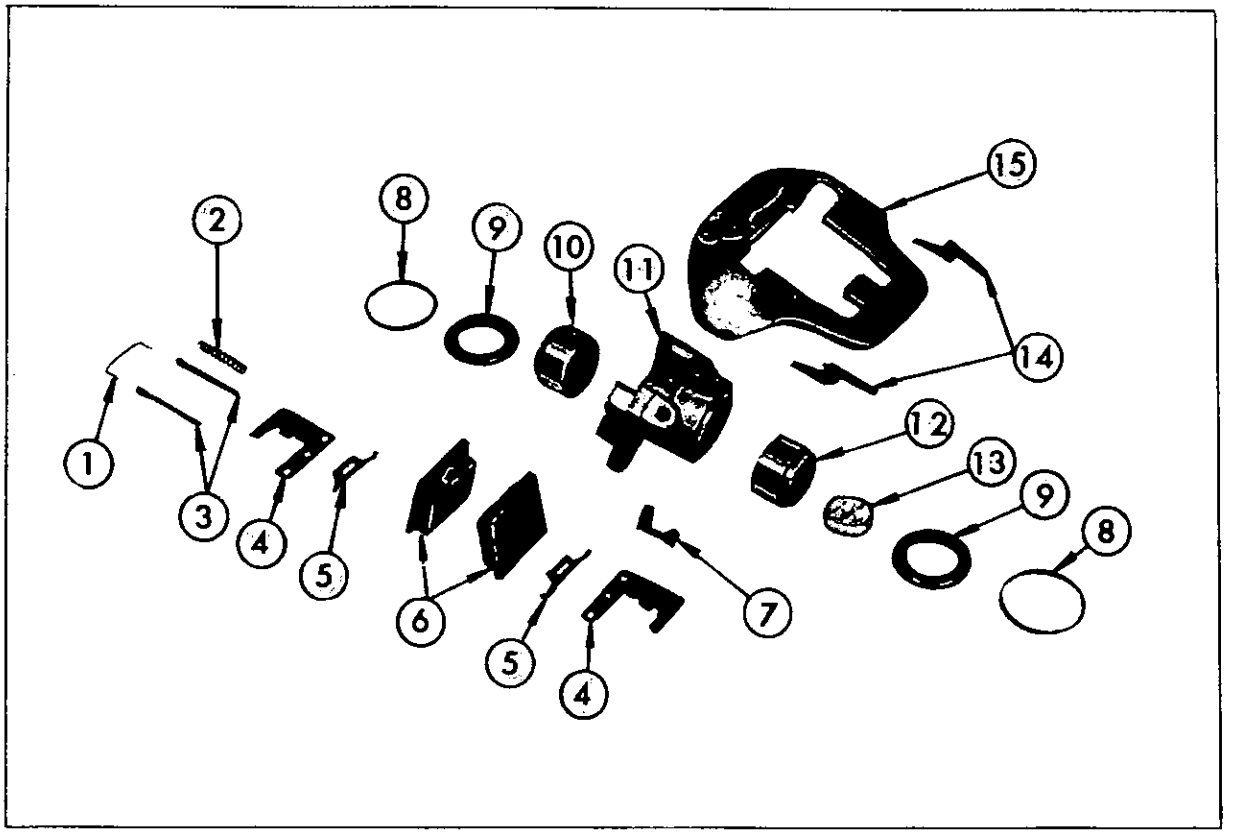
4. Adjust brake shoe clearance, and perform air bleeding on the hydraulic system.

FRONT DISC BRAKE

Floating type disc brake (Model ANNET 12/14A) is used for some territories as a standard.

Rigidity of the caliper is high, brake pedal feeling is adequate, and the pad dragging is minimized. The pad is returned by elasticity of the piston seal. When the pad is worn, the piston operating stroke increases, slipping occurs on the piston seal surface, and thus, clearance is adjusted automatically.

Moreover, in order to prevent brake squealing, a shim is inserted behind the pad.



1	Clip	6	Brake pad	11	Cylinder block
2	Spring	7	Air bleeder	12	Piston A
3	Clevis pin	8	Retaining ring	13	Bias spring
4	Shim	9	Boot	14	Yoke spring
5	Hanger spring	10	Piston B	15	Yoke

Fig. BR-20 Front disc brake components

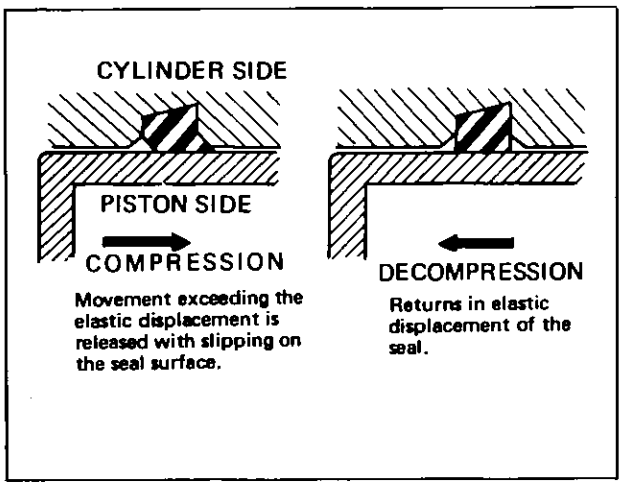

CYLINDER SIDE
PISTON SIDE
COMPRESSION
Movement exceeding the elastic displacement is released with slipping on the seal surface.
DECOMPRESSION
Returns in elastic displacement of the seal.

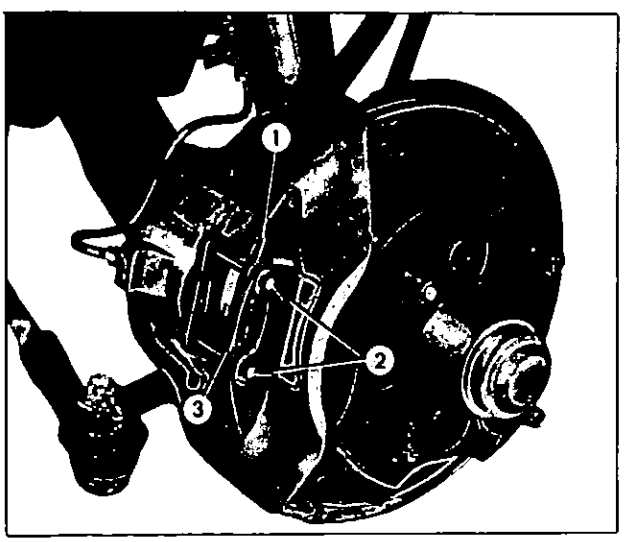
Fig. BR-21 Piston seal automatic adjusting operation

Brake pad

Replacement

1. Jack up front unit of the vehicle, and remove the front wheel.

2. Remove clip from the retaining pin, and supporting the brake pad, remove the retaining pin and coil spring.



1	Brake pad	3	Clip
2	Retaining pin		

Fig. BR-22 Removing retaining pin

3. Unhook the hanger spring, and withdraw the brake pad and shim with a pair of pliers.

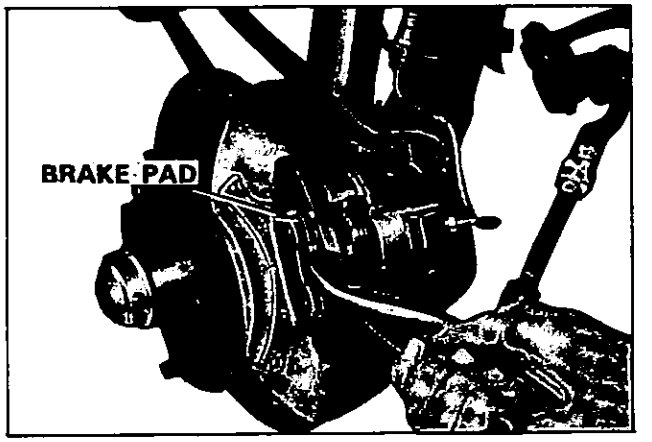


Fig. BR-23 Withdrawing brake pad and shim

Note: When the brake pad is removed, do not depress the brake pedal, or otherwise the piston will come out.

Inspection

Clearance between the brake pad and rotor is adjusted automatically. Check the brake pad for wear after the first 10,000 km (6,000 miles) driving and every 5,000 km (3,000 miles) thereafter.

1. Clean the brake pad with carbon tetrachloride or gasoline.

2. When oil and/or grease is heavily sticked on the pad, or when deteriorated or deformed due to overheating, replace the pad with a new one.

3. When thickness of the friction material (pad) is less than 1.6 mm (0.0630 in), replace.
[Replace, when total pad thickness is less than 6.1 mm (0.2402 in).]

Note: Recommend pads be replaced as a set. Replacement at only one position may cause uneven brake effect. Recommend rotation of pads be made periodically.

4. Check the rotor. (Refer to "Rotor inspection".)

Reinstallation

1. Clean the calipers and piston pad installing parts.

Note: Do not use mineral oil. Be careful not to apply oil on the rotor.

2. Depress the piston into the cylinder so that new pad can be installed.

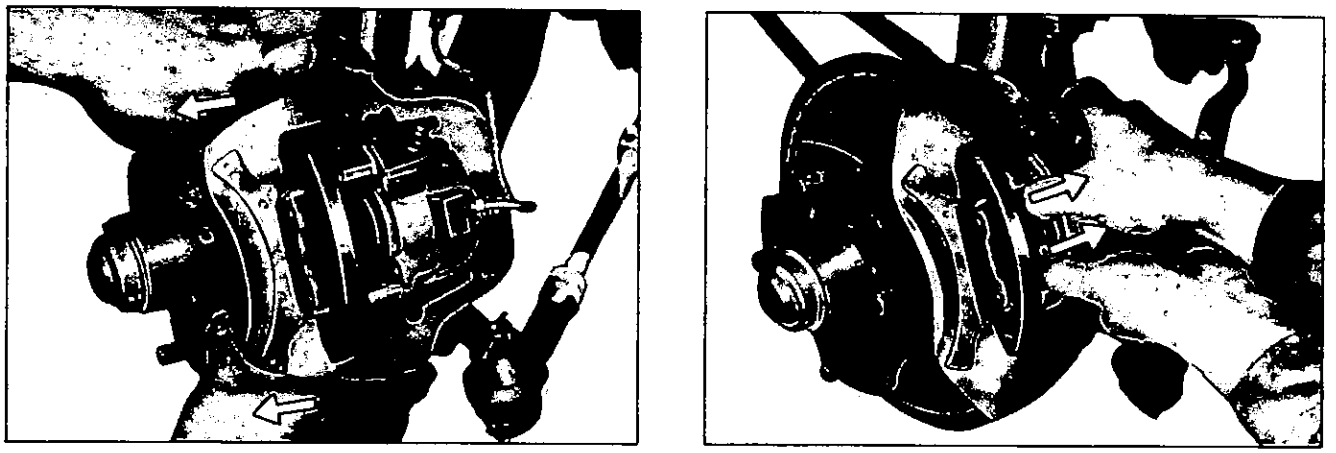


Fig. BR-24 Depression piston A and B into cylinder

Note: a. Note that brake fluid may overflow from the reservoir. Recommend operation be carried out by loosening the breather to release brake fluid.

b. The piston can be easily pushed in by hand. But if pushed excessively the groove of piston goes inside of seal as shown in Figure BR-25 and the seal will be damaged. When the piston is pushed excessively into the cylinder, remove the brake assembly, disassemble it, push out the piston to the arrow direction as shown in Figure BR-25 and reassemble.

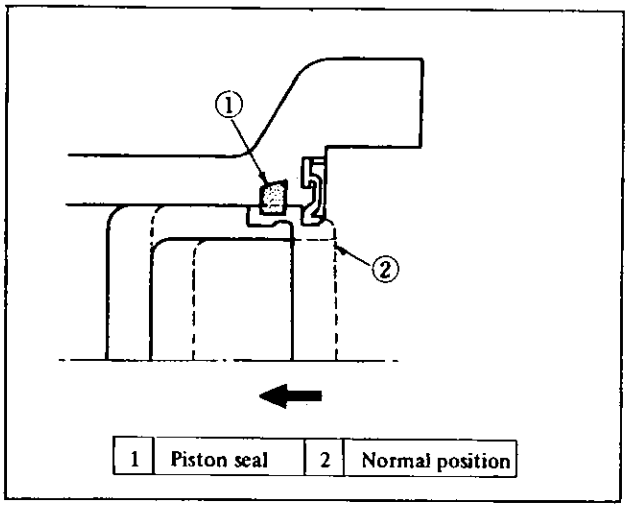


Fig. BR-25 Piston pushing in position

3. Install pad and anti-squeal shim, assemble the anti-squeal spring and retaining pin, and secure them with clip.

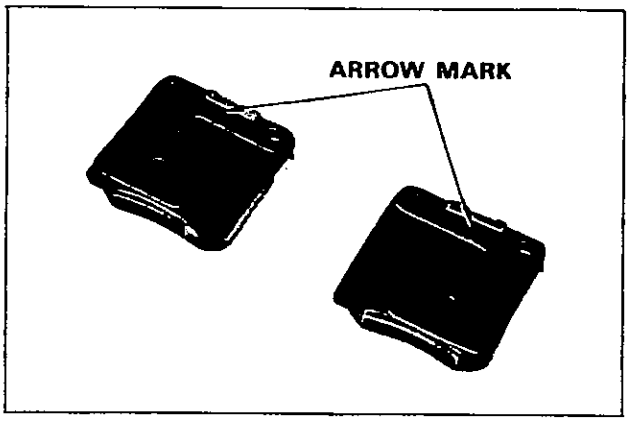


Fig. BR-26 Arrow mark on shim

1) Install the shim so that the arrow mark points the rotor forward rotating direction.

2) Apply the coil spring to the retaining pin which is distanced from the air bleeder.

4. When the pad is installed, depress the brake pedal several times so as to settle down the pad in the position.

Caliper assembly

Removal

1. Remove the brake pad. (Refer to "Pad replacement".)

2. Disconnect the brake tube from the wheel cylinder.

3. Remove the strut assembly and knuckle arm installation bolt so as to ease removal of the caliper assembly installation bolt.

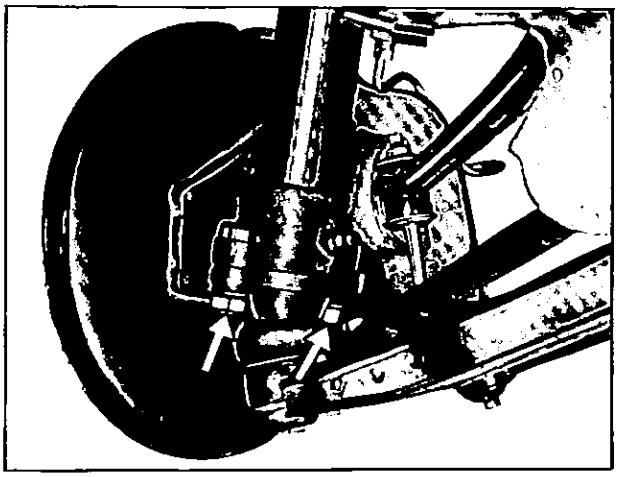


Fig. BR-27 Removing strut assembly and knuckle arm installation bolt

4. Remove the caliper assembly installation bolt, and separate it from the strut assembly.

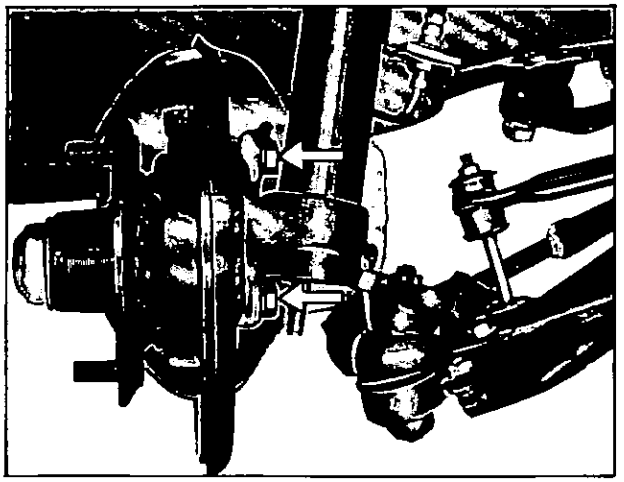


Fig. BR-28 Removing caliper assembly installation bolt

Disassembly

1. Remove mud and other contaminations from the caliper assembly before disassembly.

2. Drain brake fluid from the wheel cylinder.

3. Loosen the air bleeder, and depress tha pistons A and B into the cylinder. (Refer to "Pad replacement".)

4. Secure the yoke in a vise, and tap the yoke head with a hammer. The cylinder body can then be removed from the yoke. When removing the cylinder body, be careful not to allow the piston A coming out from the cylinder.

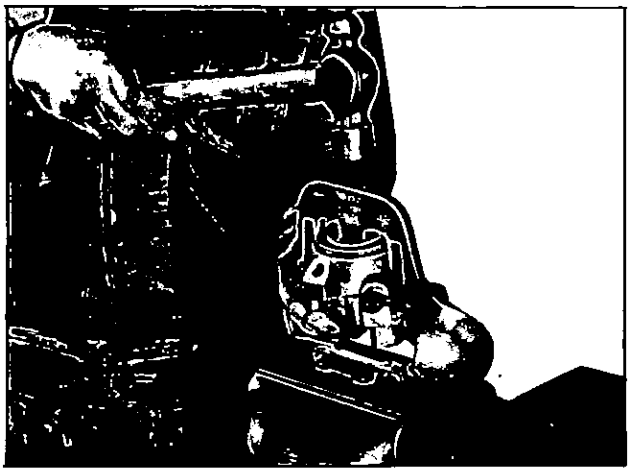
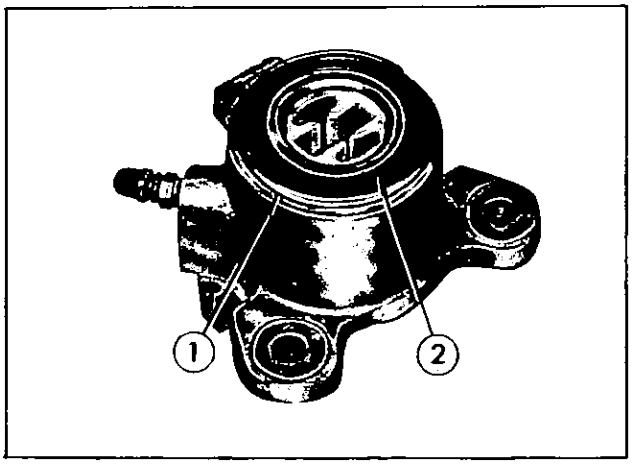


Fig. BR-29 Tapping yoke head

5. Remove the bias ring from the piston A.

6. Remove the retaining rings and boots from the pistons A and B.



1	Retaining ring	2	Boot

Fig. BR-30 Cylinder body and piston

7. Depress and remove the piston from the cylinder.

8. Remove the piston seal from the cylinder.

Note: Remove the piston seal carefully with fingers so that the cylinder wall is not damaged.

9. Remove the yoke spring and yoke bias spring from the yoke.

Inspection and repair

Thoroughly clean all disassembled parts, and check them for the following items.

Note: When cleaning rubber parts, use alcohol or brake fluid. If rubber parts are cleaned with mineral oil, they will be deteriorated.

1. Calipers

If the cylinder wall is damaged or worn, replace. If the cylinder wall is rusted or foreign matters are accumulated on the cylinder wall, carefully polish with fine emery paper so that the cylinder wall is not damaged. If rusted or roughened excessively, replace.

2. Pad

See paragraph covering replacement of pad.

3. Piston

Replace, if unevenly worn, damaged, and/or rusted.

Note: The piston sliding surface is plated. Thus, do not use emery paper, although rusted or foreign matters are sticked on the sliding surface.

4. Seals

Primarily, replace both piston and dust seals whenever overhauling.

Note: The piston seal affects not only leaking but also piston return. For this reason, replace the piston seal even if the damage is minor.

5. Rotor

Check the rotor and if it shows score, excessive out of round and so forth, reconditioning by machining is required. If any abnormal conditions such as crack, distortion and excessive deflection, replace the rotor.

Standard rotor thickness
9.5 mm (0.3740 in)

Limit of reconditioning rotor in thickness
8.4 mm (0.3307 in)

Deflection of the rotor
Below 0.03 mm (0.0012 in)

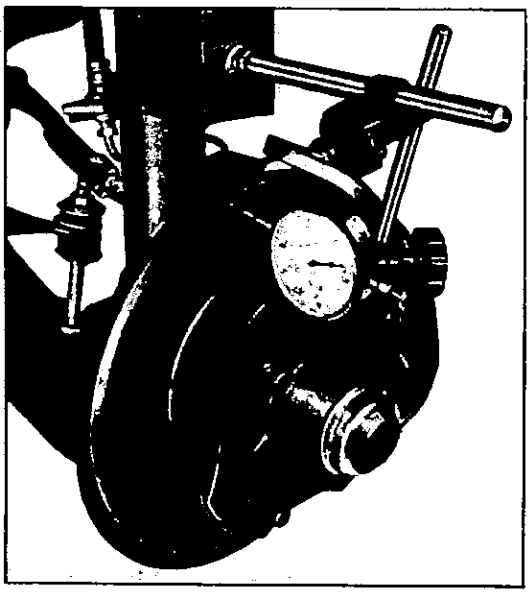
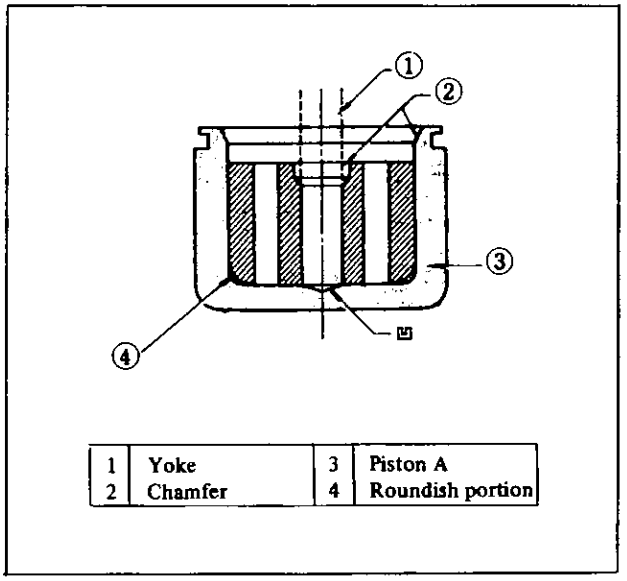


Fig. BR-31 Measuring deflection of disc

Reassembly

1. Apply the rubber grease to cylinder bore and install the piston seal.

2. Insert the bias ring to piston A so that the roundish portion of bias ring comes to the bottom of piston.



1	Yoke	3	Piston A
2	Chamfer	4	Roundish portion

Fig. BR-32 Installing bias ring into piston A

Note: Be careful not to confuse the piston A with B.

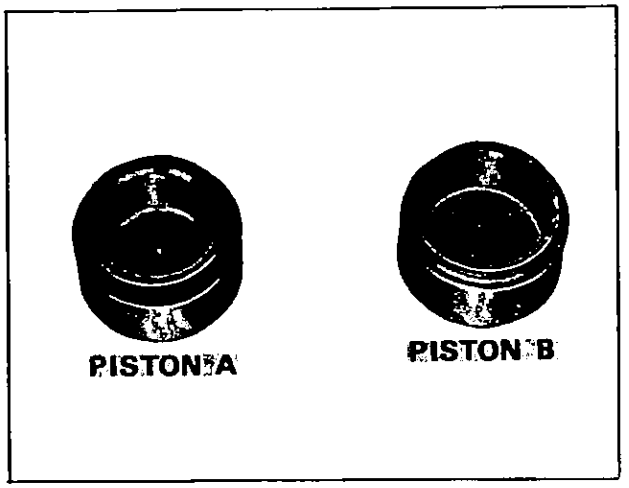


Fig. BR-33 Piston A and B

3. Apply rubber grease lightly to the sliding portion of piston and insert the piston into the cylinder.

Note: When inserting the piston, be careful not to insert too much.

4. Install the boot and retaining ring.

Fig. BR-34 Installing boot

5. Install so that the yoke groove of bias ring of piston A coincides with the yoke groove of cylinder.

6. Install so that the projected portion of yoke spring faces to disc as shown in Figures BR-35 and 36.

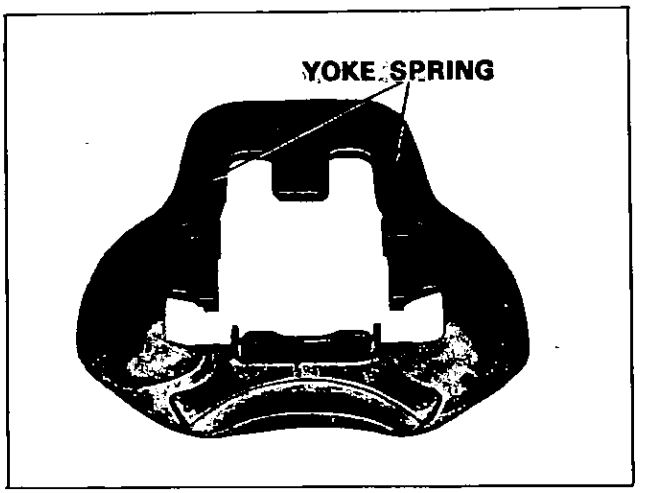


Fig. BR-35 Installation of yoke spring (1)

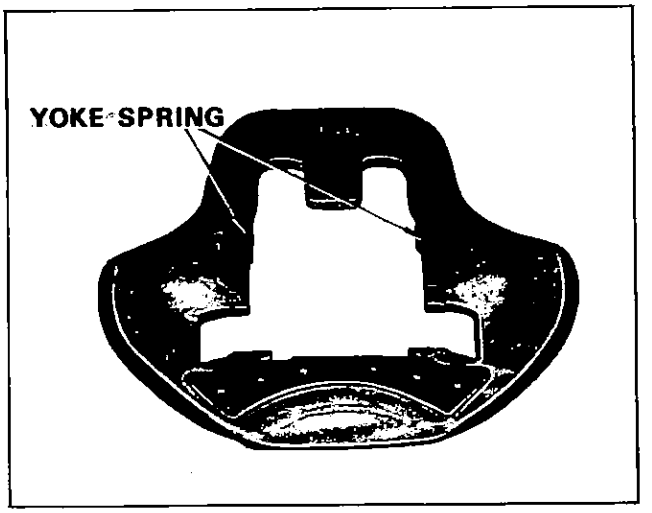


Fig. BR-36 Installation of yoke spring (2)

7. Install the bias spring to yoke so that the bias spring comes to the air bleeder side of cylinder.

8. Apply the brake grease to the yoke sliding portion of cylinder.

9. With the yoke spring inserted to cylinder groove lightly, correct position of the bias spring so that the groove of bias spring conincides with yoke.

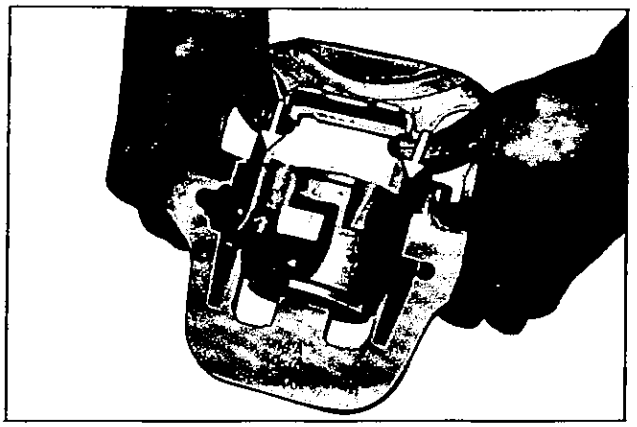


Fig. BR-37 Correcting bias spring position

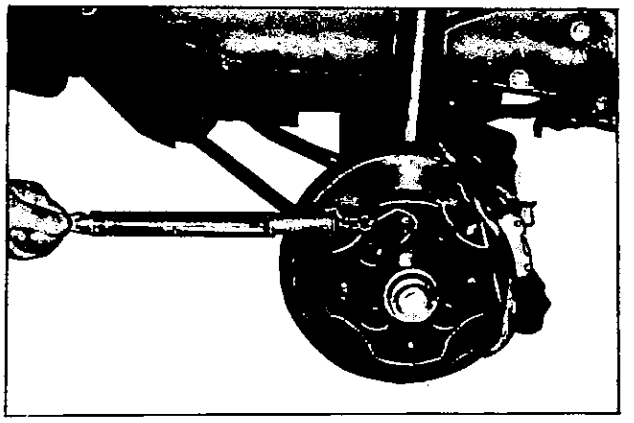


Fig. BR-38 Measuring starting torque

10. Assemble the cylinder body and yoke by tapping the yoke lightly.

11. Apply the brake grease fully to the yoke sliding groove of cylinder.

12. Install the air bleeder.

Reinstallation

Reinstall the caliper assembly in reverse sequence of removal.

After the pad is installed completely, bleed the hydraulic line and measure the rotation torque of disc.

Starting torque

9.0 kg-cm (7.80 in-lb)

At the hub bolt:

1.57 kg (3.45 lb)

Tightening torque

Caliper assembly installation bolt

4.6 to 6.1 kg-m (33.3 to 44.1 ft-lb)

Brake tube flare nut connected to wheel cylinder

1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)

REAR BRAKE

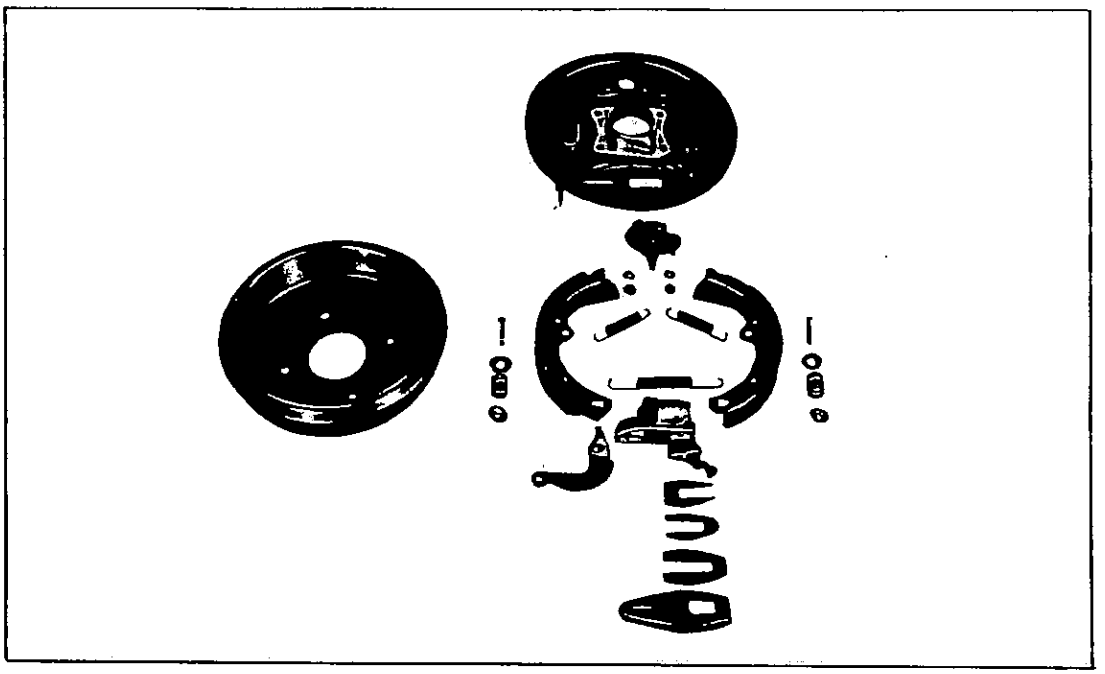
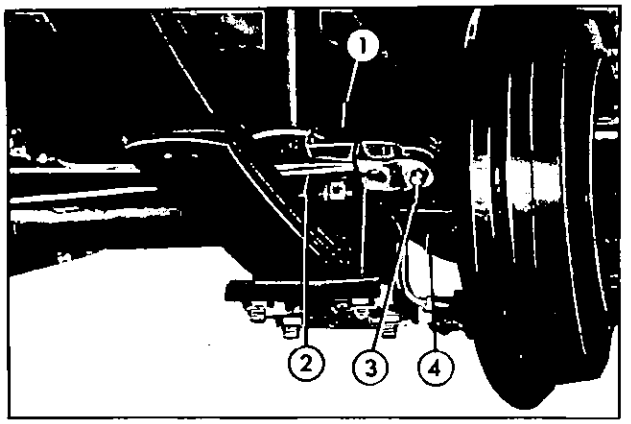


Fig. BR-39 Rear brake construction

Removal and disassembly

1. Jack up the rear side of the vehicle, support with a stand, and remove the wheel.

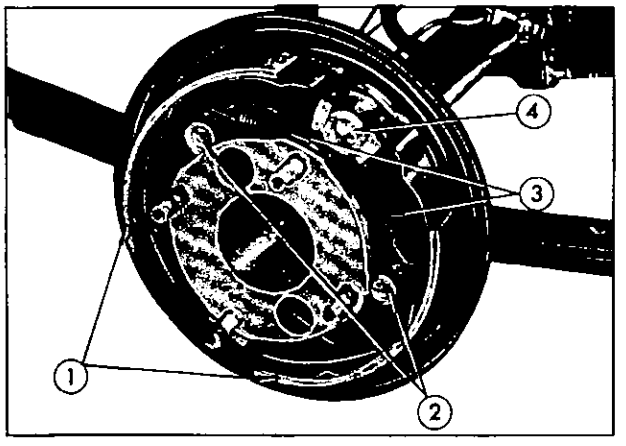
2. Loosen the hand brake wire, remove the clevis pin from the rear wheel cylinder lever, and disconnect the hand brake wire. Remove the return spring (pull spring).



1	Return spring	3	Clevis pin
2	Hand brake wire	4	Wheel cylinder lever

Fig. BR-40 Removing hand brake wire

3. Remove the brake drum. Remove the shoe retainer and return spring, and remove the brake shoe assembly.



1	Brake shoes	3	Return spring
2	Shoe retainer	4	Adjuster

Fig. BR-41 Rear drum brake

4. Disconnect the brake tube from the wheel cylinder.

5. Remove the dust cover, adjusting shims, and plates. The wheel cylinder can then be removed easily.

6. Remove the adjuster assembly.

7. Remove the flange bolt from the rear axle housing, remove the rear axle shaft. The brake disc can then be removed together with the rear axle shaft (Refer to Section RA.).

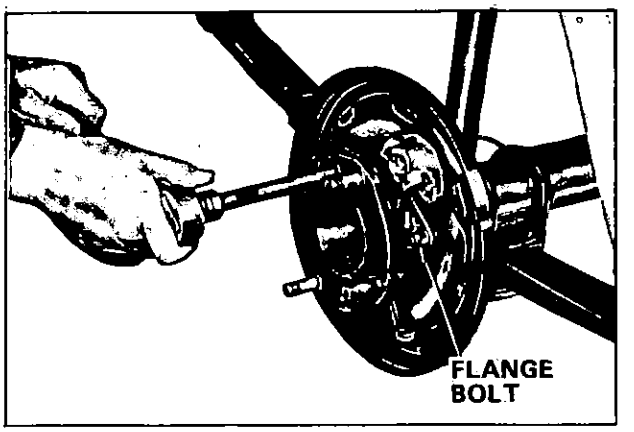


Fig. BR-42 Removing brake disc

Inspection

For the rear brake inspection, the instructions for front drum brake apply.

Return spring dimensions

	Wire dia. x free length - effective turns	Load x length
Cylinder side	2.0 x 119.2 mm - 28 (0.0787 x 4.69 in - 28)	10.6 kg x 132.7 mm (33.4 lb x 5.22 in)
Adjuster side	2.0 x 69.5 mm - 20 (0.0787 x 2.736 in - 20)	8.6 kg x 76.7 mm (19.6 lb x 3.020 in)

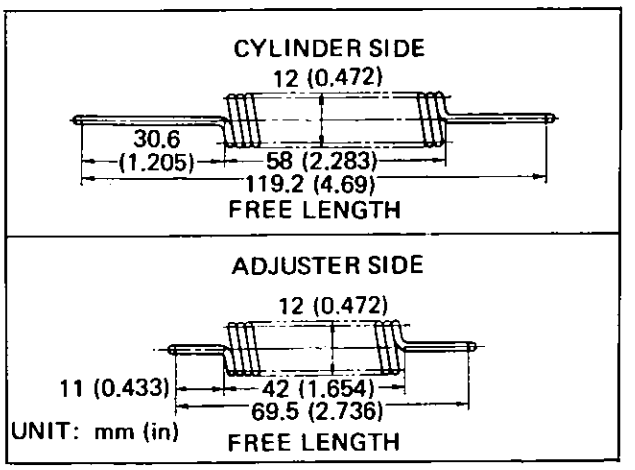


Fig. BR-43

Reassembly and reinstallation

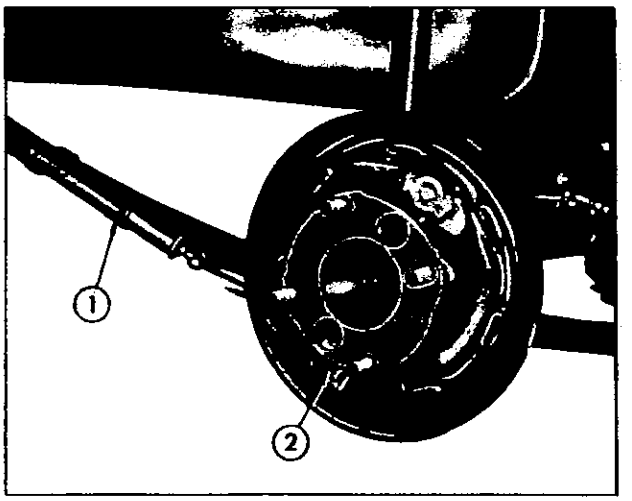
Reassemble and reinstall the rear brake in reverse sequence of disassembly and removal, noting the following matters. When reassembling, refer to the notes for front drum brake.

1. Measure the wheel cylinder sliding resistance with the brake tube disconnected as shown in Figure BR-44, and make sure that the sliding resistance is in range from 2 to 7 kg (4.409 to 15.432 lb).

Note: When sliding is improper, the brake shoe does not return smoothly.

2. Tighten the brake disc installation bolt (flange bolt) 1.5 to 2.0 kg-m (10.8 to 14.5 ft-lb).

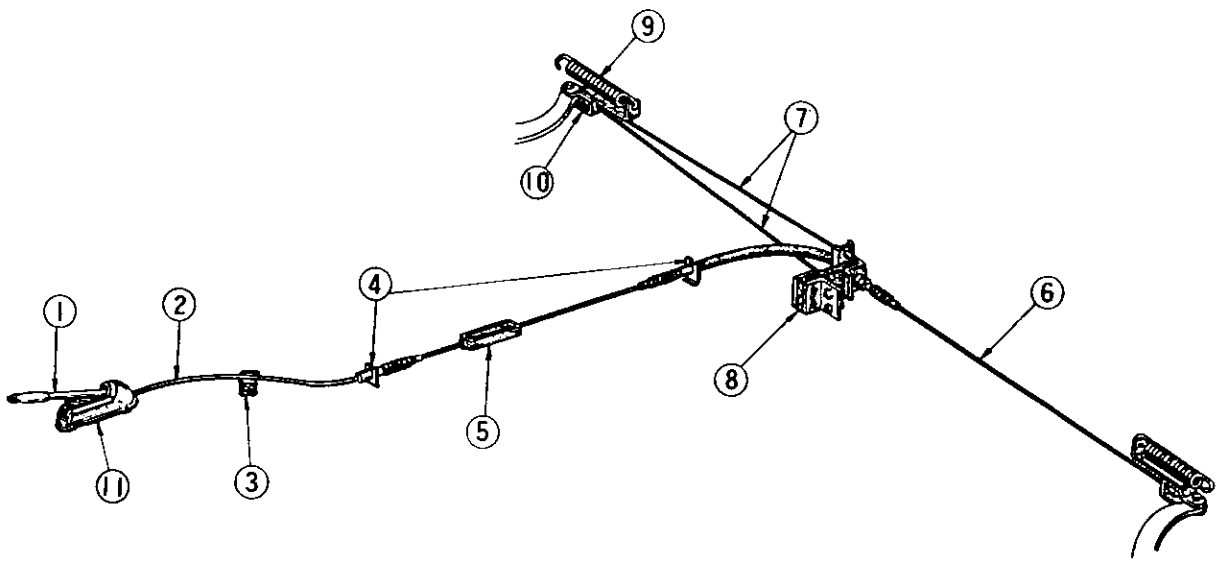
3. Tighten the adjuster assembly installation bolt 1.6 to 2.2 kg-m (11.6 to 15.9 ft-lb).



1	Spring balancer	2	Wheel cylinder

Fig. BR-44 Measuring sliding resistance

HAND BRAKE

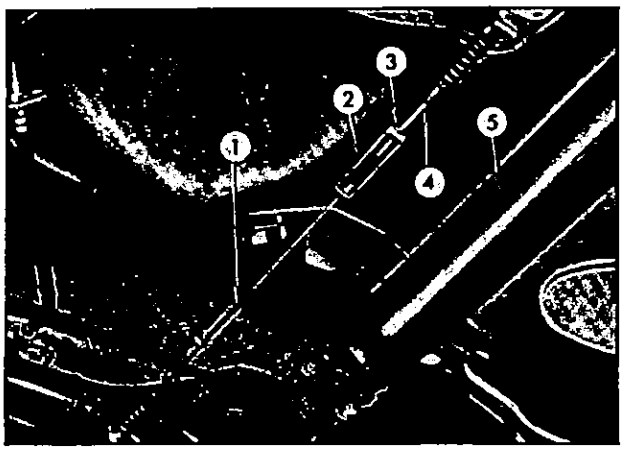


1	Hand brake lever	5	Turn-buckle (Hand brake adjuster)	8	Hanger strap
2	Cable			9	Return spring
3	Clip	6	Cable	10	Cable shank
4	Lock plate	7	Cable	11	Hand brake lever cover

Fig. BR-45 Hand brake construction

Removal

1. Loosen the turn-buckle adjusting nut, and separate the front cable from the rear cable.

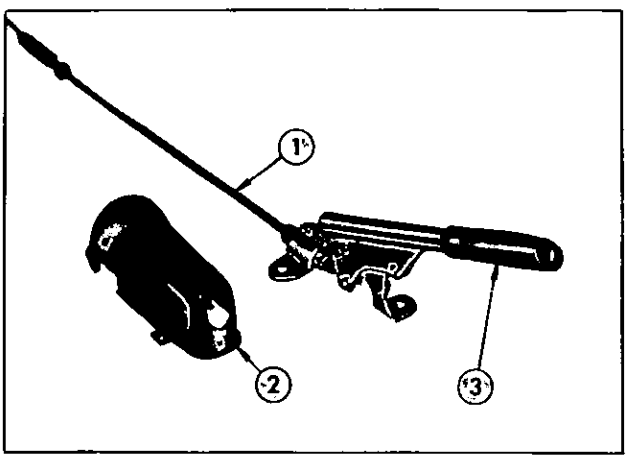


1	Rear cable	4	Front cable
2	Turn buckle	5	Propeller shaft
3	Lock nut		

Fig. BR-46 Removing turn-buckle

2. Remove the lock plate located immediately in front of the turn-buckle, remove the clip in the passenger compartment side, and disconnect the front cable.

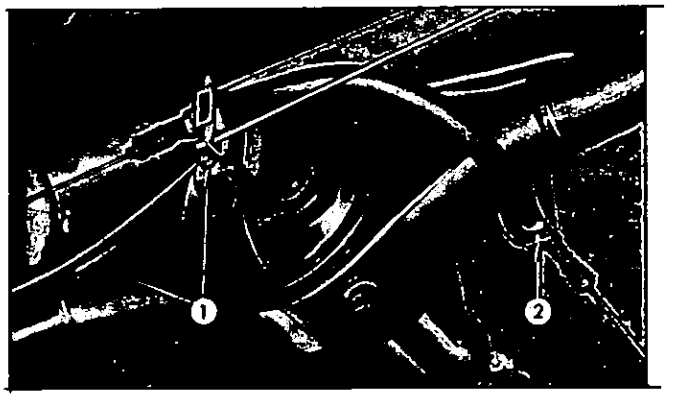
3. Remove the hand brake lever cover. Remove the lever assembly with the front cable connected toward the passenger compartment side.



1	Front cable	3	Hand brake lever
2	Cover		

Fig. BR-47 Removing hand brake lever

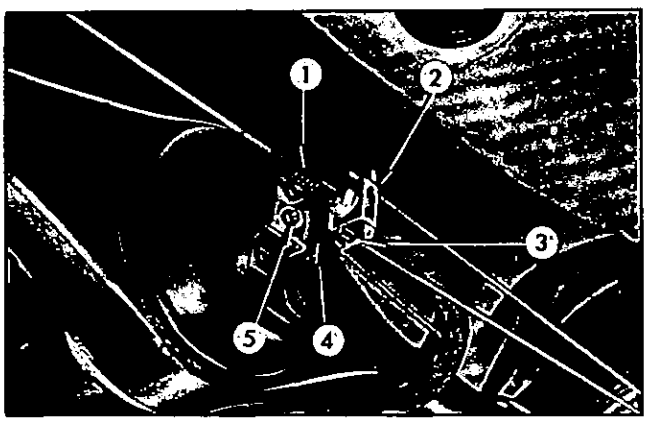
4. Remove the hanger strap installation bolt, withdraw the lock plate from the axle housing bracket unit, and disconnect the rear cable.



1	Hanger strap installation bolt	2	Lock plate

Fig. BR-48 Disconnecting rear cable from rear axle housing

5. Loosen the hanger strap unit nut, and separate the parts into nut, hanger strap washer, and bracket. Disconnect the wheel cylinder lever side brake cable.



1	Dust cover	4	Hanger strap
2	Hanger strap washer	5	Hanger strap installation bolt
3	Bracket		

Fig. BR-49 Hanger strap mounted on rear axle housing

Note: Do not remove the dust cover from the cable but leave it installed on the cable.

Inspection

1. Check the cable for damage and other defective conditions, and replace if required.

2. Replace, if sliding part is worn excessively.

3. Make sure that the hand brake lever can be operated smoothly and that the ratchet pawl and teeth are not worn unusually or damaged.

4. With the hand brake lever pulled, depress the push-button and make sure that the pawl disengages the teeth when the push-button is depressed 5 to 6 mm (0.1969 to 0.2362 in) completely.

5. Make sure that the cable dust cover is not damaged or warped.

Reinstallation

Reinstall the hand brake in reverse sequence of removal, noting the following matters

1. Be careful not to damage or twist the dust cover.

2. Tighten the hanger strap and the cable connecting nut to 0.8 to 1.0 kg-m (5.8 to 7.2 ft-lb).

3. When adjusting rear brake shoe clearance, be sure to loosen the inner cable sufficiently.

4. Grease the sliding parts with multi-purpose grease (MIL G-2108 or G10924).

ADJUSTMENT

Brake shoe clearance

Front drum brake

1. Jack up the vehicle and remove the wheel.

2. With the brake drum installed, tighten the cam adjusting stud clockwise up to such an extent that the brake shoe comes into contact with the brake drum (by applying your hand and tool from reverse side of the brake disc).

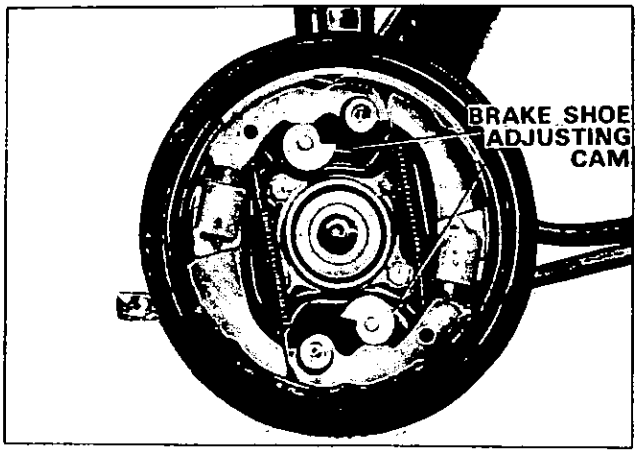


Fig. BR-50 Adjusting front brake shoe clearance

3. Turn the cam adjusting stud counterclockwise up to such an extent that the brake shoe is separated slightly from the brake drum.

4. Turn the brake drum, and if the brake shoe interferes the brake drum, readjust the clearance. In addition, depress the brake pedal, and make sure that the brake operates effectively and correctly.

Front disc brake

Ordinarily, adjustment is not required because clearance between pad and rotor is adjusted automatically by elasticity of the piston seal.

Rear brake

1. Jack up the vehicle, and remove the wheel.

2. Applying your hand and tool from reverse side of the brake disc, tighten the brake adjuster wedge clockwise up to such an extent that the brake shoe comes into contact with the brake drum.

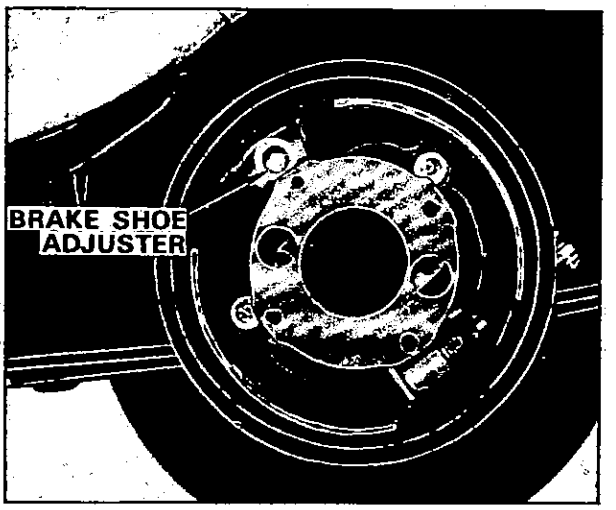


Fig. BR-51 Adjusting rear brake shoe clearance

3. Return the adjuster wedge properly so that the brake shoe is separated from the brake drum slightly.

4. Turn the brake drum, and if the brake shoe interferes the brake drum, readjust. In addition, depress the brake pedal, and make sure that the brake operates effectively and correctly.

Brake pedal height

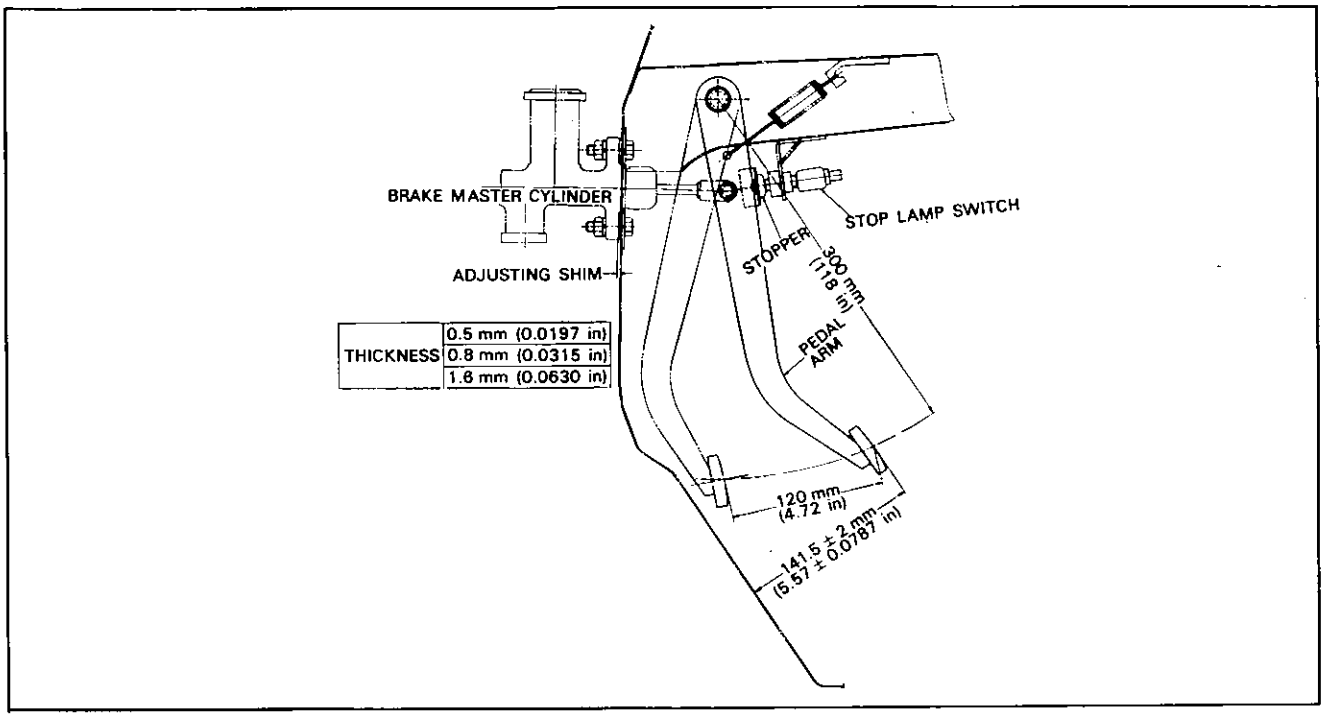


Fig. BR-52 Brake pedal adjustment

1. Loosen the stopper up to such extent that the brake pedal stopper is separated from the pedal arm.

2. Measure height of the brake pedal head from the dash panel, and adjust the adjusting shim between the brake master cylinder and dash panel so that height is 143.5 mm (5.65 in).

Adjusting shim thickness for selection:

0.5 mm (0.0197 in)
0.8 mm (0.0315 in)
1.6 mm (0.0630 in)

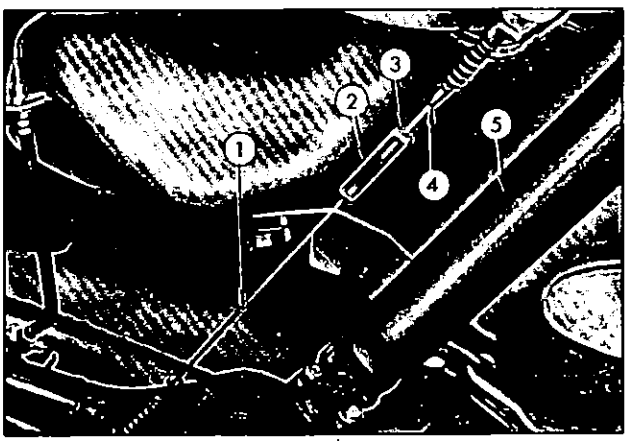
Note: When adjusting, be sure to use adjusting shims having same thickness for upper and lower brake master cylinder installation bolts.

3. Upon completion of adjusting shim adjustment, tighten the stopper down to such an extent that height of the pedal head is 141.5 ±2 mm (5.57 ±0.0787 in), and tighten the lock nut securely.

4. Free travel of the brake pedal is 6 to 15 mm (0.236 to 0.590 in), and the stroke is 120 mm (4.72 in).

Hand brake

1. Turn the turn-buckle properly and adjust hand brake lever operating stroke correctly so that operating stroke is 78.5 mm (3.091 in) (6 notches) at operating force of 11 to 15 kg (24.3 to 33.1 lb). Upon completion of adjustment, be sure to tighten the lock nut.



1	Rear cable	4	Front cable
2	Turn buckle	5	Propeller shaft
3	Lock nut		

Fig. BR-53 Adjusting turn-buckle

2. Upon completion of the adjustment, release the hand brake lever, and make sure that the rear wheels are not braked.

Normal stroke:
78.5 mm (3.091 in) (6 notches)

Limited stroke:
136.0 mm (5.35 in) (10 notches)

The term "Stroke" means height from the standard position [220 mm (8.7 in) above the hand brake lever fulcrum].

Note: Readjust hand brake stroke when it reaches the limited stroke [136 mm (5.35 in)] (10 notches).

Bleeding hydraulic system

Bleeding the hydraulic brake system deserves much attention as it is an essential factor for regular service brake operation.

As a matter of fact, during the brake service, air is likely to creep into the circuit with the result that the fluid action is altered and the brake pedal becomes spongy at the travel end.

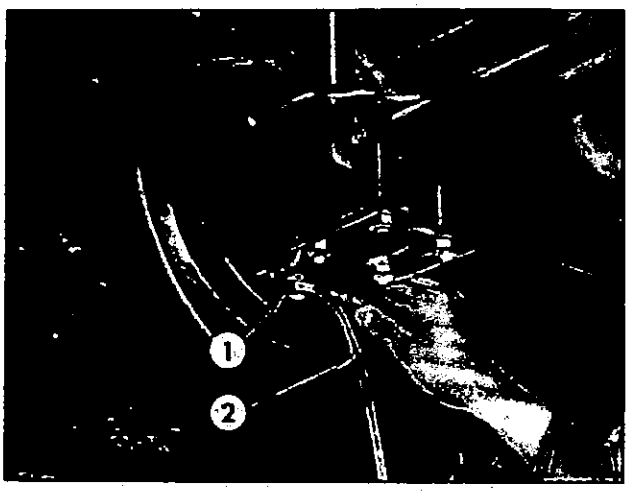
Bleeding should be carried out at first the master cylinder, then from the longest line from the master cylinder, and then finish up with the shortest.

Note: Always clear away any dirt around master cylinder reservoir cover before removing cover for any reason. Never depress pedal while brake drums are removed unless bleeder valve is open.

1. Top up the reservoir master cylinder with fluid of the recommended type.

2. Thoroughly wipe the bleeder screw and from any mud or dust present, so that the outlet hole is free from foreign matter.

3. Attach a vinyl hose to the wheel cylinder bleeder screw. Dip the end of the vinyl hose in a jar containing some brake fluid.



1	Air bleeder	2	Vinyl hose

Fig. BR-54 Connecting vinyl hose to air bleeder (rear)

4. Depress the brake pedal two to three times, and keep the pedal fully depressed.

5. With the brake pedal fully depressed, loosen the bleeder screw, exhaust air, and retighten the bleeder screw quickly.

6. Return the brake pedal slowly.

7. Repeat the operations "4" through "6" above. Air will no longer come out from the bleeder screw but brake fluid comes out. When air still exists in brake fluid, it appears white due to air bubble.

8. Conduct air bleeding on other wheel cylinders in the same manner.

Note: a. Check the reservoir for fluid level during bleeding operation.

b. Fluid withdrawn in the bleeding operation should not be used again for refilling.

c. When the master cylinder is disassembled or replaced, conduct air bleeding on the wheel cylinder which is located most near the master cylinder.

d. Ordinarily, air bleeding is performed in the following sequence:

Rear left - Rear right - Front left - Front right

e. Do not return the brake pedal before retightening the bleeder screw.

SERVICE DATA AND SPECIFICATIONS

Brake pedal

Pedal free height	mm (in)	141.5 ±2 (5.57 ±0.0787)
Full stroke of pedal head	mm (in)	120 (4.72)

Master cylinder

Inner diameter of master cylinder	mm (in)	17.46 (11/16)
Allowable maximum clearance between cylinder and piston	mm (in)	0.13 (0.0051)

Wheel cylinder

Inner diameter of wheel cylinder		
Front (drum)	mm (in)	20.64 (13/16)
(disc)	mm (in)	48.1 (1.894)
Rear	mm (in)	20.64 (13/16)
(front disc)	mm (in)	17.46 (11/16)
Allowable maximum clearance between cylinder and piston	mm (in)	0.18 (0.0071)

Brake drum and rotor (disc)

Drum brake inner diameter	mm (in)	203.2 (8.00)
Rotor (disc) outer diameter	mm (in)	212.5 (8.37)
Rator thickness	mm (in)	9.5 (0.3740)
Drum inside out of roundness	mm (in)	Below 0.02 (0.0008)
Limit of reconditioning drum in diameter	mm (in)	1.0 (0.0394)
Run out of the rotor	mm (in)	Below 0.03 (0.0012)
Limit of reconditioning rotor in thickness	mm (in)	8.4 (0.3307)

Lining dimension

Front drum brake

Lining width x thickness x length	mm (in)	35 x 4.8 x 195 (1.378 x 0.1890 x 7.68)
Total braking area	cm^2 (in^2)	273 (42.3)

Lining material		B40 (Akebono make)
Front disc brake		
Pad width x thickness x length	mm (in)	42.5 x 10.3 x 53.1 (1.673 x 0.406 x 2.091)
Total braking area	cm^2 (in^2)	90.3 (14.0)
Pad material		M112S NBK D864P (for U.S.A. and CANADA)
Rear brake		
Lining width x thickness x length	mm (in)	35 x 4.8 x 195 (1.378 x 0.1890 x 7.68)
Total braking area	cm^2 (in^2)	273 (42.3)
Lining material		B40 (Akebono make)

Tightening torque

Brake pedal fulcrum pin	kg-m (ft-lb)	2.1 to 2.9 (15.2 to 21.0)
Master cylinder installation bolt	kg-m (ft-lb)	2.1 to 2.9 (15.2 to 21.0)
Brake tube installation flare nut	kg-m (ft-lb)	1.5 to 1.8 (10.8 to 13.0)
Brake hose and connector installation nut	kg-m (ft-lb)	1.7 to 2.0 (12.3 to 14.5)
Wheel cylinder installation bolt	kg-m (ft-lb)	1.6 to 2.2 (11.6 to 15.9)
Brake warning switch installation bolt	kg-m (ft-lb)	0.32 to 0.44 (2.31 to 3.18)
Front brake disc installation bolt	kg-m (ft-lb)	2.7 to 3.7 (19.5 to 26.8)
Caliper assembly installation bolt	kg-m (ft-lb)	4.6 to 6.1 (33.3 to 44.1)
Rear brake adjuster installation bolt	kg-m (ft-lb)	1.6 to 2.2 (11.6 to 15.9)
Hand brake cable hanger strap installation bolt	kg-m (ft-lb)	0.32 to 0.44 (2.31 to 3.18)
Hand brake lever installation bolt	kg-m (ft-lb)	1.0 to 1.4 (7.23 to 10.1)
Rotor and hub installation bolt	kg-m (ft-lb)	4.4 to 5.9 (31.8 to 42.7)

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Spongy pedal	Air in brake lines	Bleed thoroughly.
	Swollen hose due to deterioration or use of poor quality brake fluid	Replace hose and bleed the system.

	Use of a brake fluid boiling point of which is too low	Change with the specified brake fluid and bleed system.
	Reservoir filler cap vent hole clogged. This promotes a vacuum in master cylinder that sucks in air through rear seal	Clean reservoir filler cap and bleed the system.
Pedal yields under slight pressure	Deteriorated check valve	Fit a new check valve and bleed the system.
	External leaks	Check master cylinder, piping and wheel cylinder for leaks and make necessary repairs.
	Master cylinder leaks through primary cap	Overhaul master cylinder.
Excessive pedal travel	System has not been bled	Bleed the system.
	Improperly adjusted clearance	Adjust shoe-to-drum clearance.
	Fluid level in master cylinder is too low	Full up with specified brake fluid. Bleed the system if required.
	Thermal expansion of drums due to overheating	Allow drums to cool off. Check brake shoe linings and drums. Replace damaged parts.
All brakes drag	Insufficient shoe-to-drum clearance	Adjust clearance.
	Weak shoe return springs	Replace the springs.
	Brake shoe return no free travel	Adjust pedal height.
	Seized master cylinder piston	Service the master cylinder, replace the piston and bleed the system.
One brake drags	Loose or damaged wheel bearings	Adjust or replace wheel bearings.
	Weak, broken or unhooked brake shoe return springs	Replace spring.
	Insufficient clearance between brake shoe and drum	Adjust brakes.
Unbalanced brakes	Grease or oil on linings	Clean brake mechanism; replace lining and correct cause of grease or oil getting on lining.
	Seized piston in wheel cylinder	Service the wheel cylinder and bleed the system.
	Tires improperly inflated	Inflate tires to correct pressure.
	Loose wheel bearing	Adjust wheel bearing.

	Front suspension faulty	Thoroughly check and adjust all front suspension components.
Excessive pedal pressure required, poor brakes	Grease, mud or water on linings	Remove drums. Clean and dry linings or replace.
	Full area of linings not contacting drums	Replace shoes.
	Scored brake drums	Reface drums and install new linings.
Brake chatter, squeak or squeal	Dust on drums or oil soiled linings	Remove and clean drums thoroughly. Eliminate oil leak.
	Weak shoe return springs	Check springs and replace as required.
	Drum out of round	Turn drums on lathe.
	Worn linings	Replace linings.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

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SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION WT

WHEEL AND TIRE

WT

WHEEL AND TIRE WT-1
TROUBLE DIAGNOSES AND CORRECTIONS WT-3

WHEEL AND TIRE

CONTENTS

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DESCRIPTION

TIRE SIZE (in)

Standard	6.00-12-4PR	(Tubeless)
Optional	6.00-12-4PR	(with tube)
	6.00-12-4PR	(Snow tire)
	6.00S-12-4PR	(Sports, Tubeless)
	155SR-12	(Radial, with tube), except for Van use
	5.00-12-4PRULT (with tube,front) 5.00-12-6PRULT (with tube, rear)	} for Van use

TIRE INFLATION PRESSURE (To be measured when tires are cold) kg/cm² (psi)

Tire size		Front	Rear
6.00-12-4PR	Sedan & Coupe	1.5 (22)	1.5 (22)
	Wagon	1.5 (22)	1.5 (22) *1.8 (26)
155 SR-12	Sedan & Coupe	1.7 (24)	1.7 (24)
	Wagon	1.7 (24)	1.7 (24)
5.00-12-4/6PR	Van	1.5 (22)	1.8 (26) *2.8 (40)

* When the load is over 2 passengers with 160 kg (350 lb) luggage.

ROAD WHEEL SIZE (in) 4J-12

PERIODICAL SERVICES

Inflation of tires

Tires with proper pressure improve riding comfort and steering stability, reduce driving sound to the minimum, and extend the service life.

The tires should be checked for proper pressure on monthly basis or more frequently depending on driving conditions, while the tires are cold.

Ordinarily, tire pressure rises 10 to 15% of that when the tire is cold during continuous driving under a constant speed due to the tire temperature rise. When measuring tire pressure accurately, first, find out whether the tire is hot or cold.

When tire valve caps are removed, be sure to reinstall them on the valves without fail. The valve caps assist in keeping air in the tire in case of a valve leak, and keep dust and water out of the valves.

When inflation pressure is too high, the following troubles will result:

1. Hard ride
2. Bruised tire or damaged carcass immediately inside the tread
3. Poor traction at rear wheel resulting in uneven wear
4. Rapid tread wear at center of tire

When inflation pressure is too low, the following troubles will result:

1. Tire squeal on turns
2. Hard steering
3. Rapid and uneven wear on tire tread edges
4. Bruised tire rim and various types of rupture
5. Tire cord fatigue or breakage
6. Tramp and shimmy troubles
7. Unusual tire temperature rise
8. Car roll while turning a corner or making a sharp swerve in traffic

Tighten wheel nuts to a torque of 8.0 to 9.0 kg-m (58 to 65 ft-lb).

Be sure to retighten wheel nuts after running 100 to 200 km (60 to 120 miles).

Radial tire

When comparing to the ordinary tires, camber power of a radial tire is lower and cornering power is higher, and consequently, toe-in increases excessively, causing unevenly worn tire and/or rapid tire wear. Thus, the front wheel alignment should be carried out carefully and correctly. (See Chapter FA.)

Characteristics of a radial tire differ from that of an ordinary tire. Do not mingle radial tires with an ordinary tire or vice versa. When replacing a radial tire with an ordinary tire due to unavoidable reason, use ordinary tires for front tires.

Tire rotation

1. Service life of a tire is indicated by miles driven. The tires are provided with "tread wear indicator" [marks in six positions on the tire circumference, which indicate limit of 1.6 mm (0.06 in) tread depth]. When the tire is worn to the service life, the tread wear indicator appears. (In other words, when the indicator appears, the tire has reached its service life.) Generally speaking, service life of a tire is 40,000 km (24,000 miles).

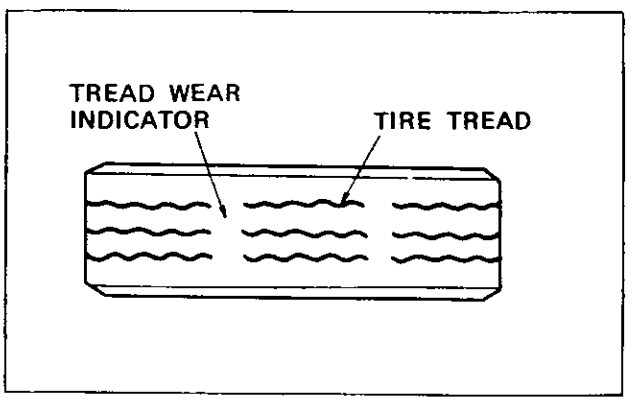

Fig. WT-1 Tread wear indicator

2. When it is intended to use five tires including the spare tire evenly, conduct tire rotation in accordance with the tire shifting order shown in Figure WT-2 whenever the vehicle is driven 10,000 km (6,000 miles).

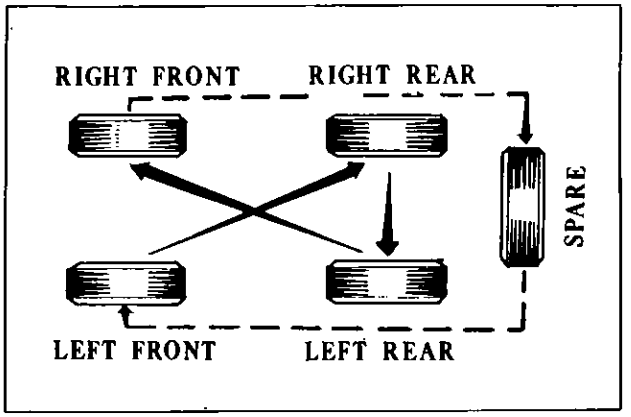

Fig. WT-2 Tire rotation

INSPECTION

Wheel balance

The permissible unbalance of wheel and tire assembly is 10 gr (0.35 oz) or less [165 gr-cm (2.29 in-oz) or less] at the rim circumference. In no event should a 70 gr (2.47 oz) or heavier balance weight be attached to the wheel. Balance weights are available from 10 to 70 gr (0.35 to 2.47 oz) with every 10 gr (0.35 oz) interval.

Note: Be sure to install balance weight on the flange of inside rim.

Wheel

1. When the wheel deflections toward vertical and horizontal axes at the points indicated by the asterisk (*) in Figure WT-3 are 1.0 mm (0.04 in) or more, replace the wheel

2. Check the flange of rim for deformation, crack, damage, tear of welded unit, and other defective condition. Deformed and damaged rim will cause air leakage.

3. Thoroughly remove rust, rubber particles, mud, sand, and other foreign matters from the flange of rim, if any, with a wire brush, emery paper, and/or cloth.

4. Remove small pieces of gravel, glass, nail, and other foreign matters from tire tread.

5. When the tire side wall is cracked noticeably or tread wear indicator is exposed, replace the tire with a new one.

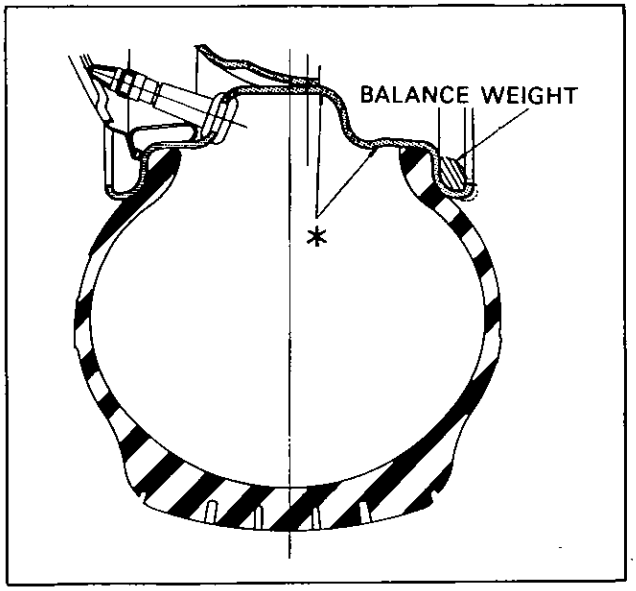

Fig. WT-3 Wheel rim run-out check points

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Wheel wobbles	Improper tire pressure	Measure and adjust correctly.
	Damaged tire or distorted wheel rim	Repair or replace.
	Unbalanced wheel	Balance correctly.
	Loose wheel nuts	Retighten.

	Worn or damaged wheel bearing, or excessive play of wheel bearing	Correct play or replace.
	Improper front wheel alignment	Adjust.
	Worn or damaged ball joint and link bushing	Replace.
	Excessive steering linkage play or worn steering linkage	Adjust or replace.
	Loose steering linkage connection	Retighten the nuts with the rated tightening torque, or replace worn parts if any.
	Broken suspension spring	Replace.
	Defective shock absorber	Replace.
Unevenly or excessively worn tire	Improper tire rotation	Conduct tire rotation periodically. [Standard: every 10,000 km (6,000 miles)]
	Improper tire pressure	Measure and adjust correctly.
	Unbalanced wheel	Balance or replace.
	Improperly adjusted brake	Readjust correctly.
	Improper wheel alignment	Realign.
	Excessively distorted or improperly installed suspension link	Repair correctly or replace if necessary, or reinstall correctly.
	High speed on curves	Reduce speed.
	Sudden start and improper speeding due to rapid acceleration or improper brake application	Follow correct and proper driving manner.
Tire squeals	Improper tire pressure	Measure and adjust correctly.
	Improper front wheel alignment	Realign correctly.
	Distorted knuckle or suspension link	Repair or replace if necessary.

SERVICE JOURNAL OR BULLETIN REFERENCE

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SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION ST

STEERING

ST

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DESCRIPTION

The steering system consists of recirculating ball type gear box and parallelogram linkage.

These systems give good response, light handling and utmost durability. Moreover, the steering linkage is equipped with a torsion rubber system idler arm which absorbs shock from the wheel.

The lubricant of gear box should be checked every 10,000 km (6,000 miles) and replenish recommended oil as required.

The steering linkage should be greased up with wheel bearing grease every 50,000 km (30,000 miles)

All necessary service procedures for the steering lock system are described in the BODY ELECTRICAL SECTION of this manual, and therefore, no instruction is given here.

STEERING

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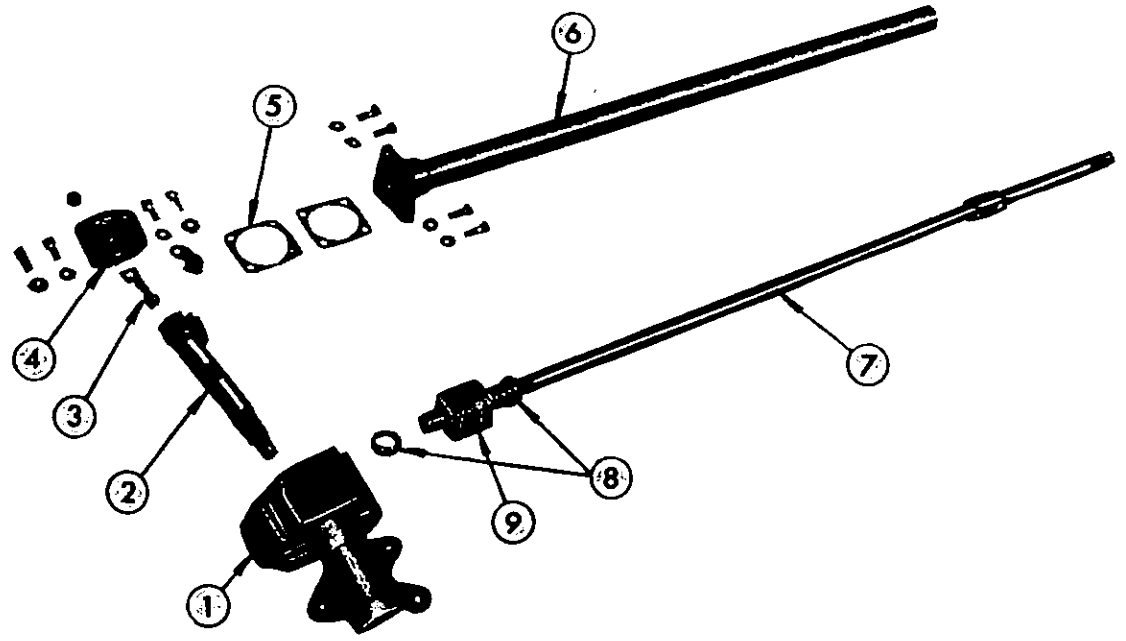

1	Steering gear housing	4	Cover sector shaft	7	Assembly-column, steering
2	Shaft-steering sector	5	Shim-worm bearing	8	Assembly-bearing, steering worm
3	Screw-adjusting, roller shaft	6	Comp.-jacket, column	9	Assembly-nut, ball

Fig. ST-1 Steering gear components

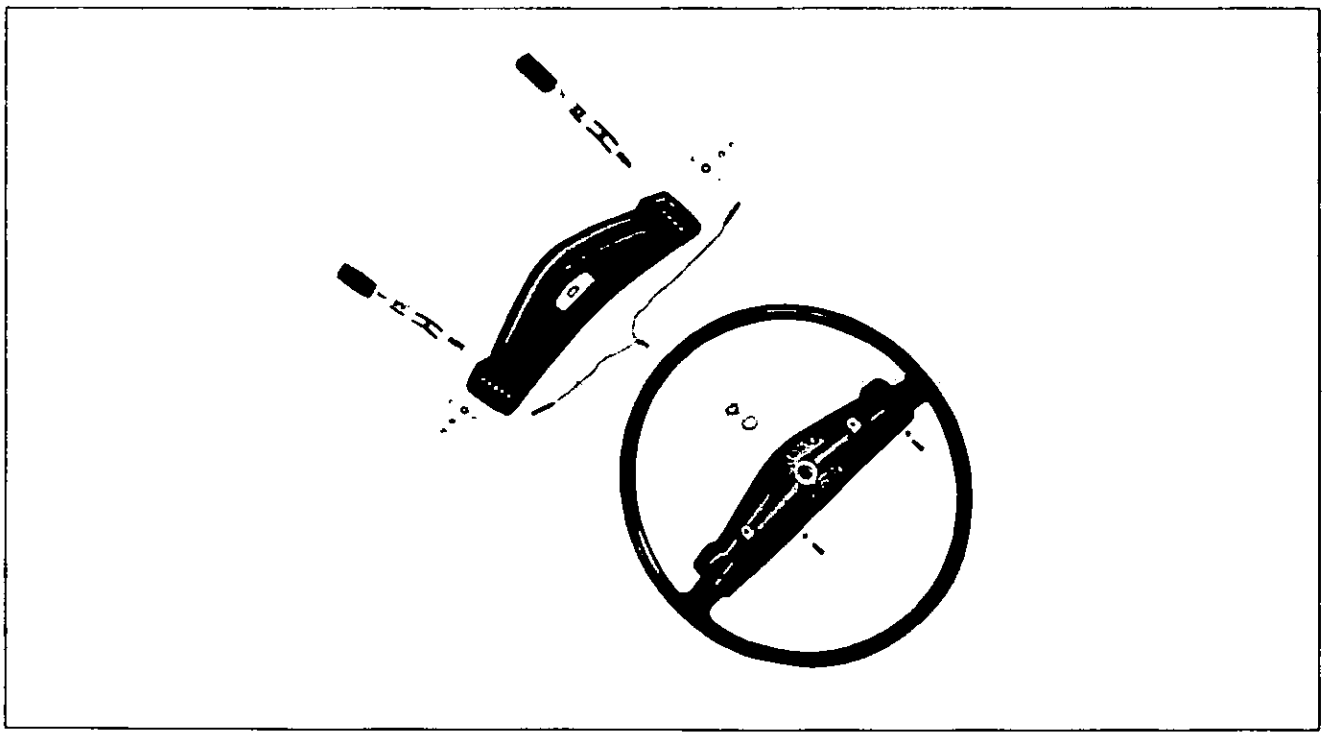

Fig. ST-2 Steering wheel

REMOVAL

1. Remove the horn ring and remove the steering wheel nut.

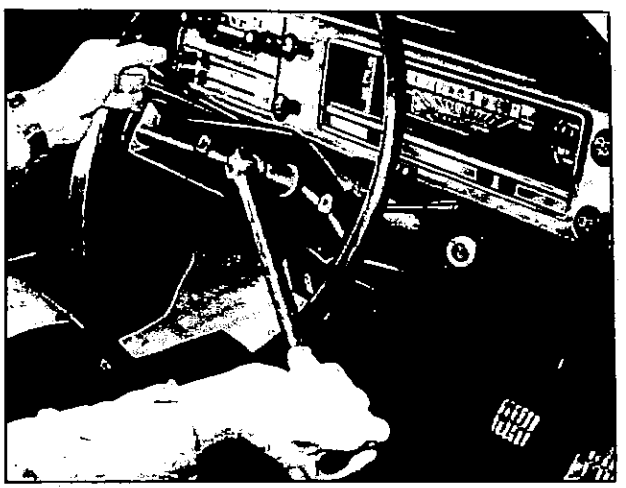

Fig. ST-3 Removing steering wheel lock nut

Note: The horn ring can be easily removed by tow bolts.

2. Remove the steering column shell.

3. Remove the turn signal and lighting switch completely.

4. Remove the hand lever assembly from the control rod assembly by unscrewing the fixing bolts.

5. Remove two fixing bolts (used to secure the steering column to the instrument panel).

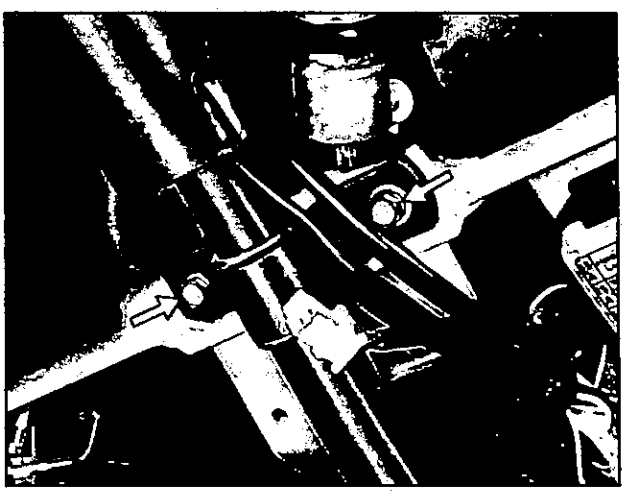

Fig. ST-4 Removing steering column upper side

6. Remove six bolts (used to secure the steering column hole cover to the dash board).

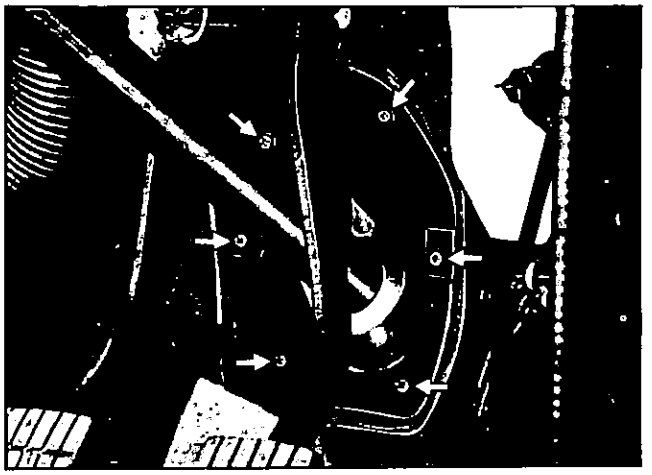

Fig. ST-5 Removing steering column hole cover

7. Remove the shift rod and select rod from the change lever and select lever after removing the cotter pin from the trunnion.

8. Disconnect the gear arm from the cross rod.

9. Remove three bolts (used to secure the steering gear housing to the body).

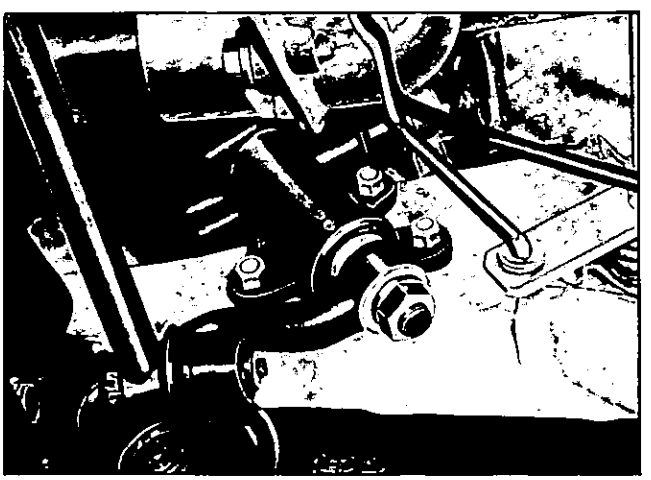

Fig. ST-6 Removing steering gear assembly

10. Pull the steering gear and transmission control toward the engine compartment.

11. Remove the transmission control from the steering gear assembly as outlined under "Transmission control".

DISASSEMBLY

1. Remove the steering gear arm fixing nut and pull out the gear arm by the use of a Steering Gear Arm Puller (ST27140000).

2. Remove the drain plug and drain the oil from the steering gear housing.

3. Loosen the adjusting screw nut and turn the sector shaft adjusting screw a few turns counterclockwise.

Remove four sector shaft cover fixing bolts and pull the sector shaft cover with sector shaft from the gear housing.

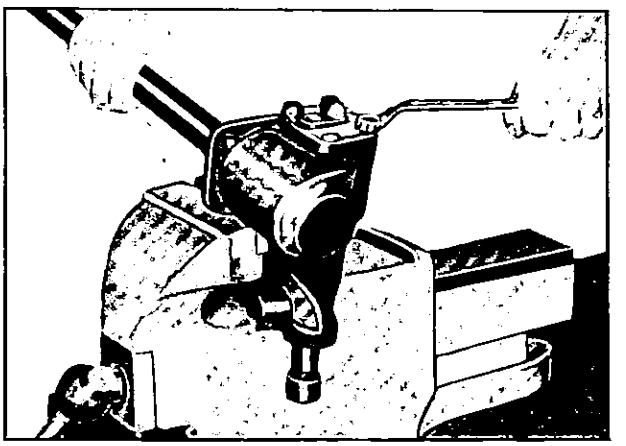

Fig. ST-7 Removing sector shaft cover

4. Remove four fixing bolts securing the column jacket to the gear housing and pull out the main column jacket assembly from the gear housing.

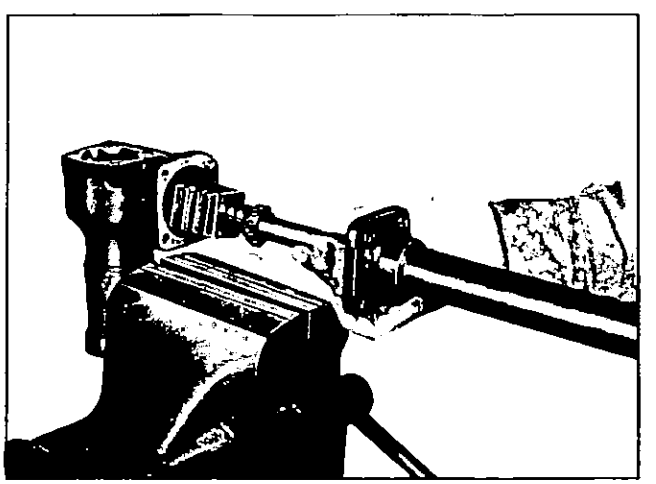

Fig. ST-8 Removing main column

Note: Be careful not to allow the ball nut running down to either end of the worm. The ends of the ball guides will be damaged if the nut is allowed to rotate until stopped at the end of the worm.

5. Pull out the column assembly from the column jacket.

6. Remove the sector shaft oil seal.

7. Take out the rear bearing outer race from the column jacket by the use of a puller.

8. Take out the bearing inner races from the front and rear worm bearings.

9. Remove the colum shaft bearing.

Ball nut assembly

If the ball nut assembly or column is defective, recommend the column assembly to be replaced, because assembly and adjustment of the column assembly are very difficult.

However, for your reference, disassembly, assembly and adjustment are described as follows.

Disassembly

1. Remove the clamp of the ball guide tube and withdraw the ball guide tube out of ball nut.

2. Turn the nut upside down and rotate the column back and forth until all 38 balls are dropped out of ball nut. With the balls removed, the nut can be pulled endwise off the column.

Note: Be careful not to lose the balls and make sure that total number of balls is 60 balls (7/32 in dia.).

Inspection

Check ball guide tubes for damage at the ends where they pick up the balls from the helical path. Replace guide tubes if damaged.

Assembly and adjustment

1. Assemble the ball nut on the worm with the ball guide hole up.

2. Drop 19 balls into each of two holes on the same side of ball nut.
Turn the column gradually away from the hole being filled. Continue until all 38 balls are installed.

Note: In cases where the balls are stopped by the end of the column, hold down these balls already dropped into the ball nut with the blunt end of a clean rod or punch and turn the column in the reverse direction a few turns.
The filling of the circuit can then be continued. It may be necessary to work the column back and forth, holding the balls down first in one hole then the other, to close up the space between the balls and fill the circuit completely and solidly.

3. Place remaining 22 balls in halves of ball guide tubes, 11 each of two halves.

4. Close this half of guide tube with the other half. Hold the two halves together and plug each open end with vaseline so that balls will not drop out while installing.

5. Push the guide tubes into the guide holes of the ball nut.

6. Assemble the ball guide tube clamp to the ball nut.

INSPECTION AND REPAIR

1. Measure axial clearance between the steel balls and ball nut and if the clearance is more than 0.08 mm (0.0031 in), replace the parts as a complete unit.

2. Inspect gear teeth of sector shaft and ball nut for wear or damage. If there is any sign of damage, replace.

3. Inspect bearings, for wear or chip. Replace bearings as required.

4. Inspect the serration of sector shaft and column for wear.

ASSEMBLY AND ADJUSTMENT

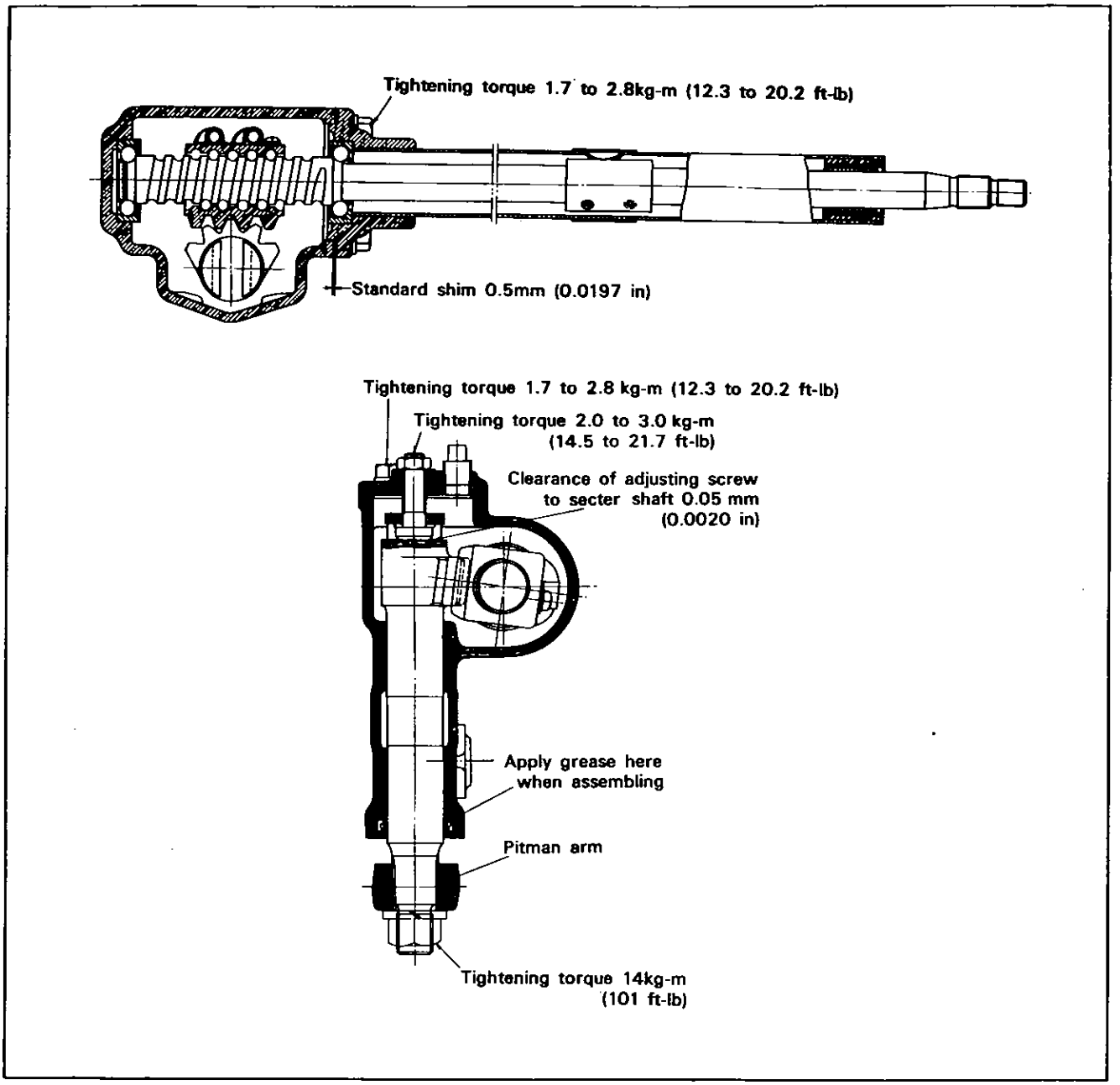
Tightening torque 1.7 to 2.8kg-m (12.3 to 20.2 ft-lb)
Standard shim 0.5mm (0.0197 in)
Tightening torque 1.7 to 2.8 kg-m (12.3 to 20.2 ft-lb)
Tightening torque 2.0 to 3.0 kg-m (14.5 to 21.7 ft-lb)
Clearance of adjusting screw to secter shaft 0.05 mm (0.0020 in)
Apply grease here when assembling
Pitman arm
Tightening torque 14kg-m (101 ft-lb)

Fig. ST-9 Sectional view of steering gear

1. Press in oil seal into the housing.

Note: Apply chassis grease to the oil seal lip before assembling.

2. Insert the column assembly into the column jacket completely and install them with worm bearing shims to the gear housing by the use of four flange fixing bolts.

Tightening torque is 1.7 to 2.8 kg-m (12.3 to 20.2 ft-lb).

3. If replacement of column bearing assembly is necessary, a new bearing assembly should be filled with bearing grease and then cemented to the column.

4. Adjust the preload of the worm bearing by selecting the thickness of the worm bearing shim [five kinds 0.05 to 0.20 mm (0.0020 to 0.0079 in)] so that the initial turning torque of the steering wheel is 2.0 to 5.0 kg-cm (27.8 to 69.4 in-oz) without sector shaft.

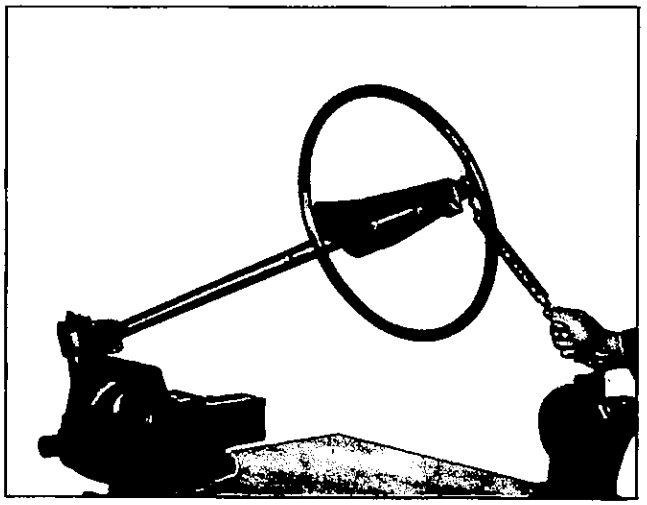

Fig. ST-10 Measuring initial turning torque

Note: Apply oil on the worm bearings. The turning torque (wheel in motion) should be 100 to 250 gr (3.5 to 8.8 oz) at 20 cm (7.874 in) radius of the steering wheel. As to the standard number of worm bearing shims, refer to the following table.

Worm bearing shim	
Part number	Thickness mm (in)
48031 18000	0.05 (0.0020)
48032 18000	0.07 (0.0028)
48033 18000	0.08 (0.0031)
48034 18000	0.10 (0.0039)
48035 18000	0.20 (0.0079)

5. Sector shaft lash adjuster end clearance. Assemble lash adjuster with shimin the slot of the sector shaft end. Measure clearance [0.05 mm (0.0020 in)].

To obtain this clearance, five various thickness shims are available.

Adjusting screw shim	
Part number	Thickness mm (in)
48130 66000	1.515 to 1.535 (0.0596 to 0.0604)
48131 66000	1.545 to 1.565 (0.0608 to 0.0616)
48132 66000	1.575 to 1.595 (0.0620 to 0.0628)
48133 66000	1.605 to 1.625 (0.0632 to 0.0640)
48134 66000	1.635 to 1.655 (0.0644 to 0.0652)

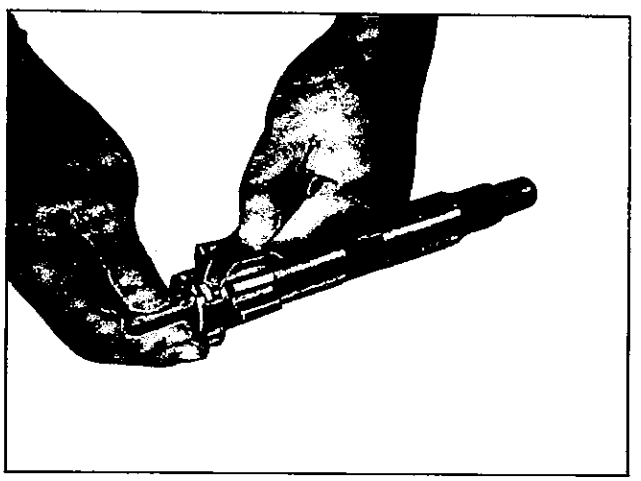

Fig. ST-11 Checking lash adjuster end clearance

6. Assemble the sector shaft into the gear housing.

(1) Rotate worm column by hand until ball nut is in the center of its travel, so that the center tooth of sector shaft enters into the center tooth space of ball nut.

(2) With new gasket in place, push the sector shaft cover with sector shaft in place.

After making sure that there is some lash between the rack and sector teeth, tighten side cover bolts.

Tightening torque is 1.7 to 2.8 kg-m (12.3 to 20.2 ft-lb).

Note: Apply oil on the sector shaft.

(3) Lock the adjust screw with the adjusting screw nut temporarily.

(4) Move the sector shaft for several times from the side of the gear arm and make sure it turns smoothly.

(5) Connect the gear arm to the sector shaft. When fitting the gear arm, the aligning marks on the gear arm and sector shaft should be matched correctly.

(6) Adjust the backlash at the neutral point by screwing the adjusting screw so that the movement of the gear arm top end [radius 127 mm (5.00 in)] is within 0.1 mm (0.0039 in), and lock temporarily by the nut.

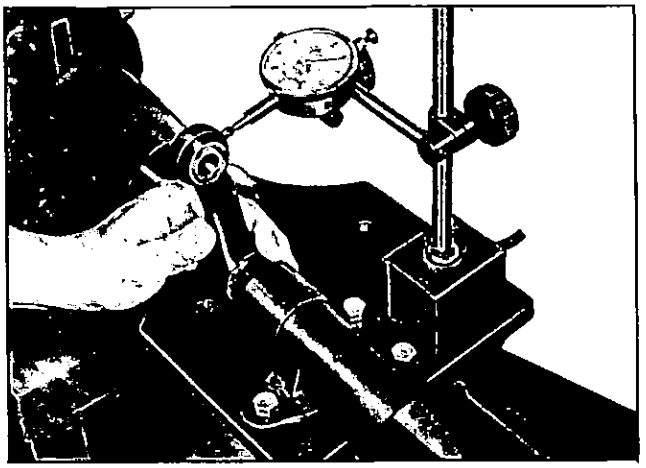

Fig. ST-12 Checking backlash

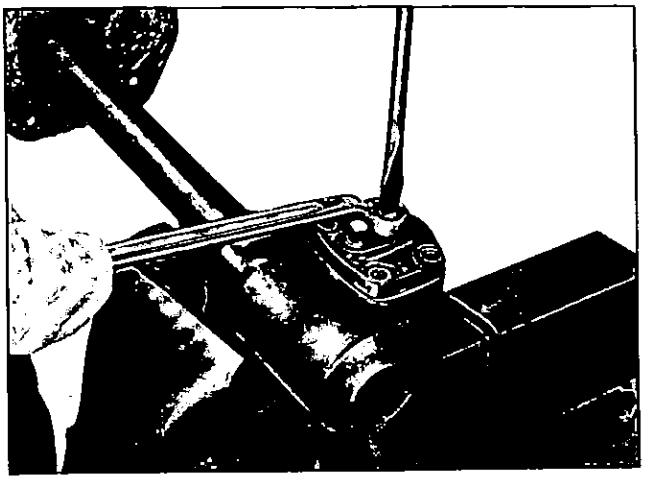

Fig. ST-13 Adjusting backlash

7. Fill gear oil MPS 90 [about 0.23 liter (0.486 US pts/0.405 UK pts)] into assembly through filler hole and install a filler plug.

INSTALLATION

Installation can be accomplished in the reverse order of removal. Pay attention to the following points.

1. Make sure that the steering wheel moves smoothly.
2. Check the alignment of the steering wheel.
3. Free travel of steering wheel should be 20 to 25 mm (0.787 to 0.984 in).

COLLAPSIBLE STEERING

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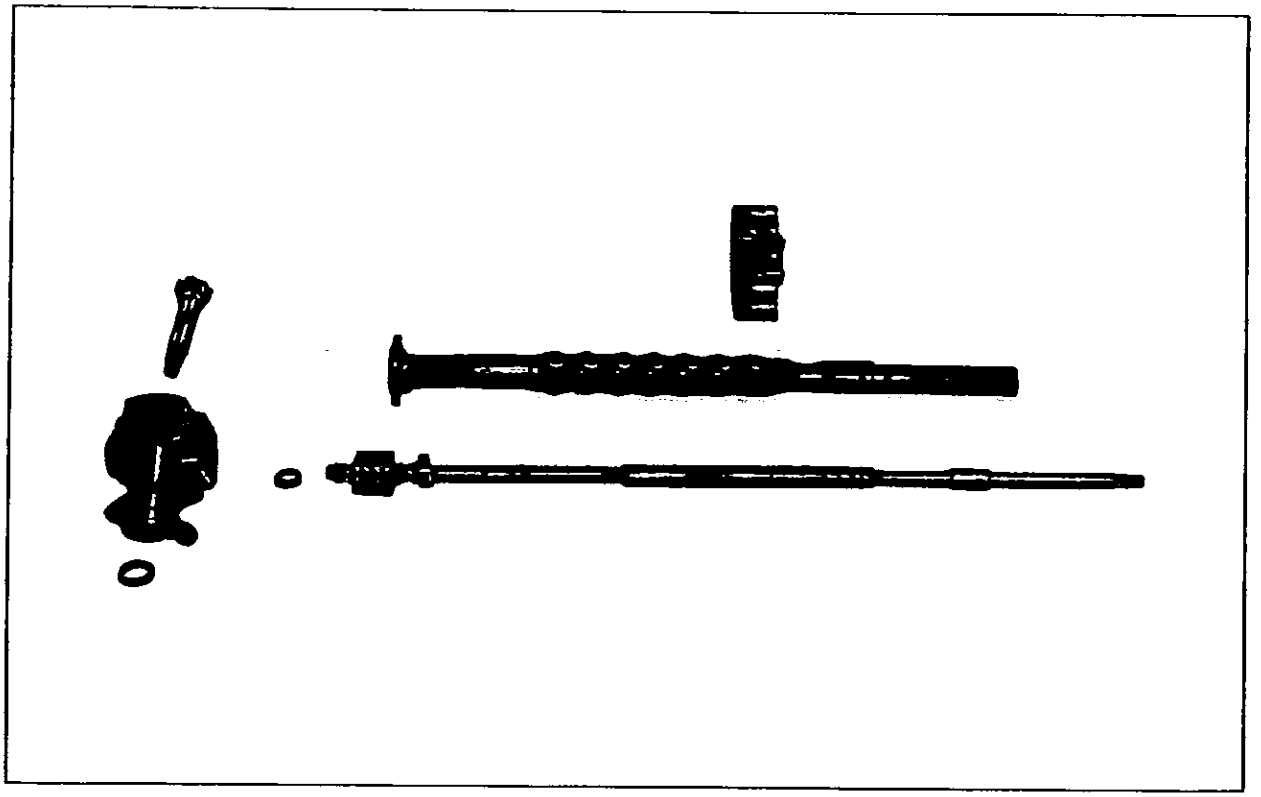


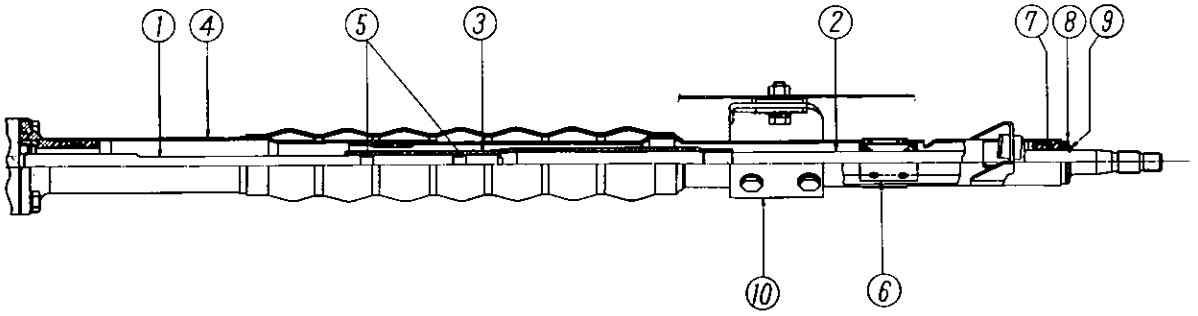
Fig. ST-14 Collapsible steering

DESCRIPTION

This column is designed to be compressed under an impact. When an automobile is being driven, the forward movements of the automobile and the driver constitute a form of energy or force. When the automobile is involved in a head-on collision, the primary force (forward movement of the car) is suddenly halted, while the secondary force (the driver) continues in the forward direction. A severe collision generally involves these two forces – primary and secondary. The secondary impact occurs when the driver thrusts forward onto the steering wheel and column.

The collapsible column is designed to absorb primary and secondary forces to the extent that the severity of the secondary impact is reduced, thereby reducing the tendency to move rearward into the driver's compartment. A split second later when the driver is thrown forward (the secondary impact), this energy is also partially absorbed by contraction characteristics of the column.

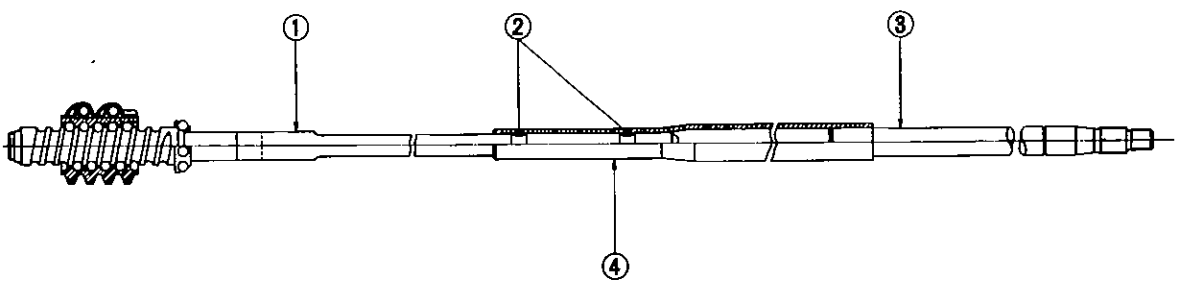
When the collapsible column is installed in a car, it is no more susceptible to to damage than is an ordinary column; however, when the column is removed, special care is required in handling the assembly. When the column is removed from the car, such actions as a sharp blow on the end of the steering shaft or shift levers, leaning on the column assembly, or dropping of the assembly could bend the steering column jacket, especially the bellows part which absorbs the energy.



1	Lower column shaft	5	Plastic pin	8	Washer
2	Upper column shaft	6	Column collar	9	Snap link
3	Lower column tube	7	Column bush	10	Steering post clamp
4	Jacket tube				

Fig. ST-15 Collapsible steering

STEERING COLUMN



1	Lower column shaft	3	Upper column shaft	4	Lower column tube
2	Plastic pin				

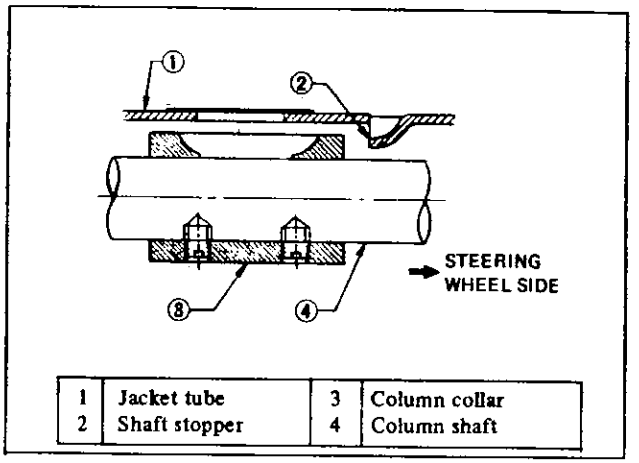
Fig. ST-16 Steering column

The construction of the steering column is as such that the lower shaft is fitted into the upper tube when a compressing force is applied to the lower shaft.

Steering torque is transmitted by the lower shaft and upper tube. The lower shaft adopts a special shape (a circle with two straight cut edges), and the upper tube interior is tightly fitted against the lower shaft exterior toward the entire area. In addition, four plastic pins completely eliminate gap between the lower shaft exterior and upper tube interior.

When a compressing force is applied, the above described plastic pins are cut and the lower shaft is fitted into the upper tube. When the lower shaft is once fitted into the upper tube, the shaft end spreads, and the lower shaft cannot be withdrawn unless an extremely high load is applied.

Note: In no event should an impact or large power be applied to the shaft with a hammer or other matter during disassembly or reassembly.



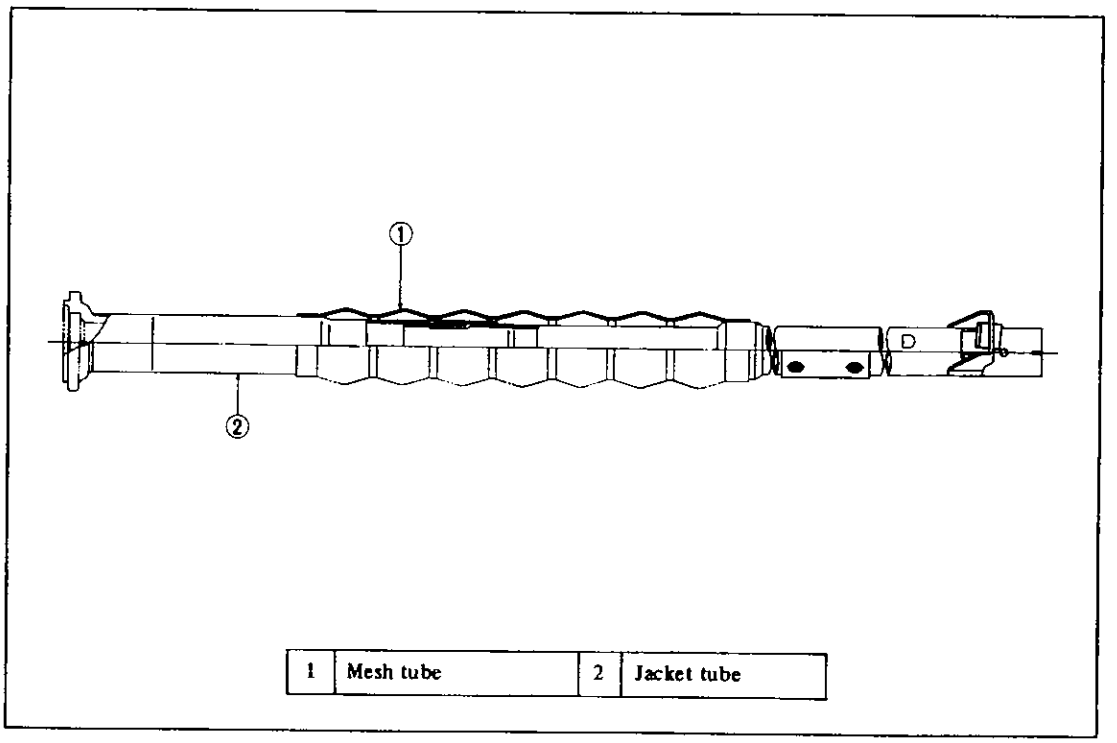
1	Jacket tube	3	Column collar
2	Shaft stopper	4	Column shaft

Fig. ST-17 Shaft stopper

Moreover, for rearward column shaft projection, the collar for steering lock installed on the shaft runs against stoppers (in three places) on the jacket tube, which allows the column shaft fitting, and thus, rearward projection is prevented.

The column shaft lower end and upper end are supported respectively by two worm bearings and a column bushing.

JACKET TUBE



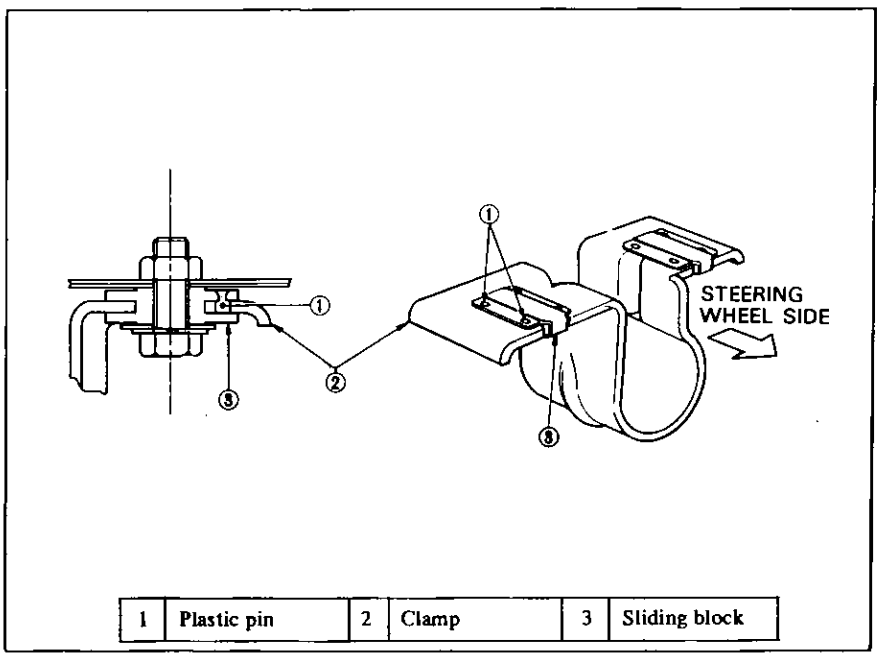
1	Mesh tube	2	Jacket tube

Fig. ST-18 Jacket tube

The jacket tube is of a mesh a part of which is punched in rhombus, forming an energy absorbing part of the collapsible steering.

Upper and lower guide tubes (two guide tubes) joined with polyacetal resin are inserted into the mesh tube so that an energy generated by collision can be absorbed as smoothly as possible with a low load. The guide tubes function as a guide for mesh tube while the mesh tube is collapsed, and improve bending rigidity of the entire jacket tube.

STEERING POST CLAMP



1	Plastic pin	2	Clamp	3	Sliding block

Fig. ST-19 Steering post clamp

The steering post clamp is secured on the jacket tube with bolt(08110 81210),and in addition, two aluminum sliding blocks are set stationarily on the main body with plastic pins.

Note: For the bolt used to install the steering post clamp on the jacket tube, do not use bolt having a length exceeding the rated length, or otherwise the bolt interferes the column shaft causing a trouble.

Tightening torques are as follows:
Steering post clamp – Jacket tube:
0.8 to 1.0 kg-m (5.8 to 7.2 ft-lb)

Steering post clamp – Steering post bracket:
1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)

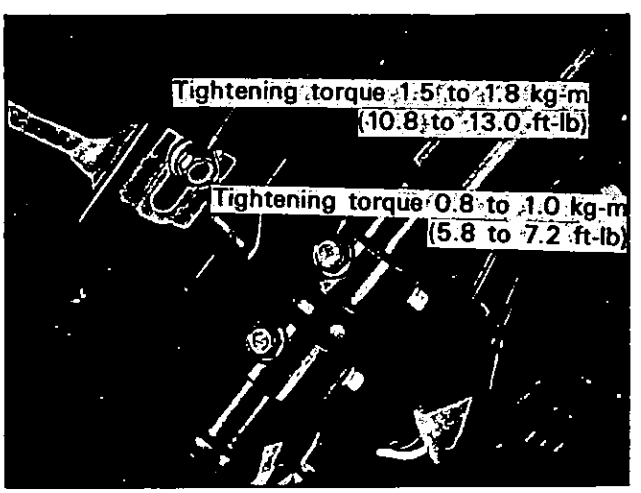


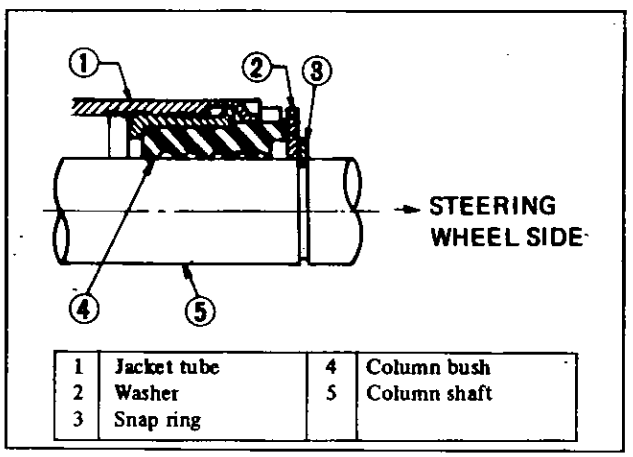
Fig. ST-20 Steering post clamp bolts

The sliding block is secured on the steering post bracket with bolts, upper half of the steering column is supported on the bracket, and thus, the steering post clamp is installed on the body.

When a large impact is applied from the driver side, the plastic pins are cut off, and leaving the sliding block in the steering post bracket side, the clamp proper is disengaged downward together with the jacket tube.

For any force applied from front direction of the vehicle, the steering post clamp sliding block does not move rearward. This construction is called "One way slide system", and with this construction, projection of the column shaft toward the driver is prevented completely.

COLUMN BEARING



1	Jacket tube	4	Column bush
2	Washer	5	Column shaft
3	Snap ring		

Fig. ST-21 Column bearing

Construction of the column shaft upper bearing is as such that both radial and thrust forces are absorbed.

DISASSEMBLY

First, remove the snap ring from the upper surface of the column bushing. Thereafter, general instructions for ordinary steering apply.

Inspect and adjust the sector shaft, worm ball nut unit, adjust screw unit, worm bearing, and other relative parts in accordance with the instructions for ordinary type steering.

INSPECTION

Inspect the parts such as column shaft, jacket tube, etc. which are used to absorb energy in accordance with the following instructions:

1. Check the column shaft plastic pin for breakdown.

2. Check the steering lock collar for warping and screw for breakdown.

3. Measure total length of the jacket tube. Replace, if contracted. However, when tube collapse is within 3 mm (0.1181 in), adjustment by means of bushing is also possible.

4. Check the steering post clamp sliding block for tightness.

5. Check the column shaft for bending. When the A and B portions are supported, the bending should be less than 1.0 mm (0.0394 in) at the C portion.

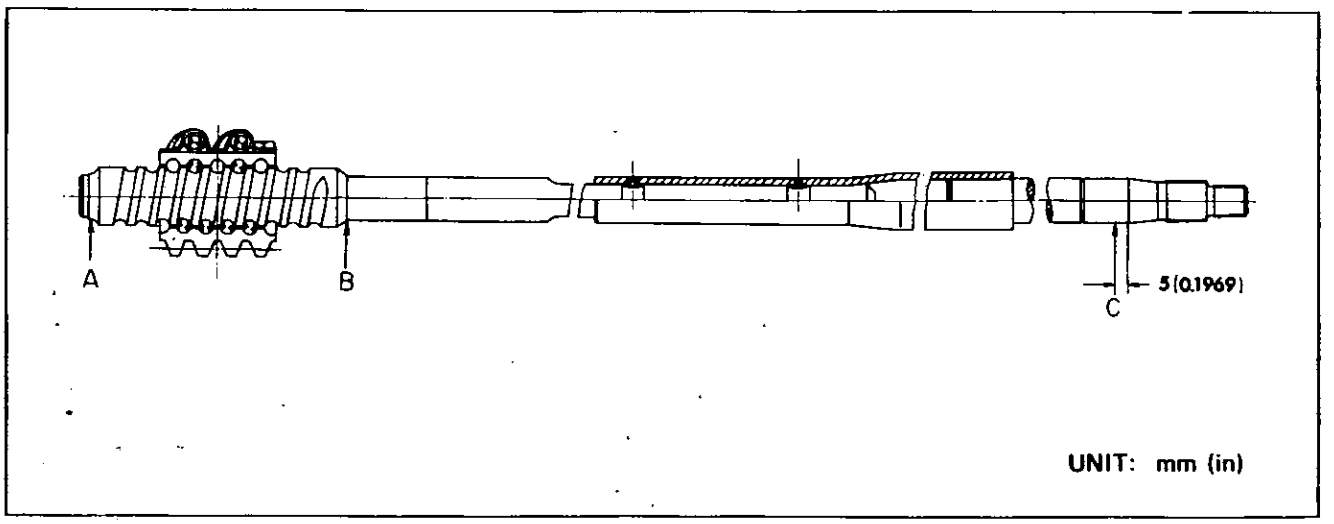


Fig. ST-22 Measurement of defective of column shaft

REASSEMBLY

1. Adjust alignment, and install the worm shaft and jacket tube on the housing.

2. Apply bearing grease to the interior sufficiently, and screw the column bushing above the rated position.

3. Apply washer, and apply the snap ring to the groove correctly and securely.

4. Return the column bushing, allowing the top surface of the bushing coming into contact with the lower surface of the washer, adjust the clearance to less than 1.0 mm (0.0394 in), and adjust the bushing position correctly so that column shaft turning torque is the rated value.

Note: If the clearance is too small, the steering becomes heavy.

5. Line up the jacket tube upper end to the groove on the outer circumference of the column bushing, and securely caulk two symmetrical positions on the circumference. When caulked securely, make sure that inner diameter of the jacket tube is 27.5 mm dia. (1.083 in dia.), and that length of caulking is 4 mm (0.1575 in).

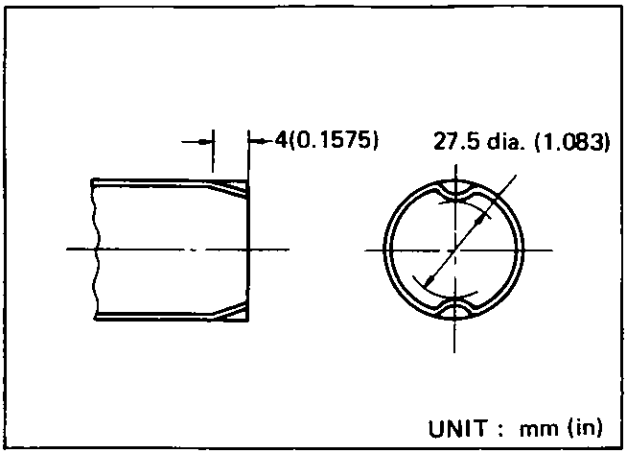


Fig. ST-23

Note: Be careful not to crack the tube or deform the bushing while caulking. Moreover, when caulked, make sure that outer diameter of the jacket tube is less than 31.8 mm dia. (1.252 in dia.).

6. When column bushing position is found to be improper after caulking, recaulk or adjust by the use of the following shim(s).

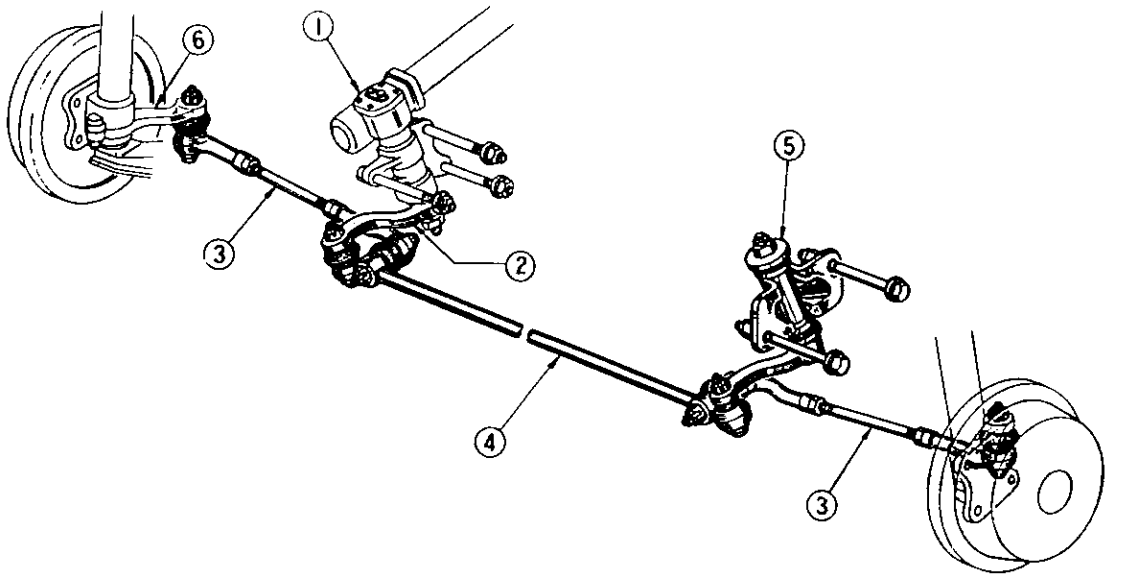
Part number	Thickness mm (in)
48932 H1020	0.05 (0.0020)
48932 H1021	0.10 (0.0039)

7. Install the sector shaft, adjust screw, and side cover in the manner identical to ordinary steering.

STEERING LINKAGE

CONTENTS

REMOVAL ST-14
DISASSEMBLY ST-14
INSPECTION AND REPAIR ST-15
ASSEMBLY ST-15
INSTALLATION ST-16
ACCIDENT (COLLISION) ST-16
ADJUSTMENT ST-16



1	Steering gear	3	Side rod	5	Idler arm
2	Pitman arm	4	Cross rod	6	Knuckle arm

Fig. ST-24 Steering linkage

REMOVAL

1. Jack up front of the vehicle and support with stands.

2. Remove cotter pins and castellated nuts which are used to fasten side rod ball studs to knuckle arms.

3. Free the ball studs from knuckle arms by backing up boss with a large hammer and striking the opposite side with a hammer.

4. Remove the ball studs of cross rod from the gear arm and idler assembly under the same procedure as described in step 3. The cross rod and side rods can be removed as an assembly.

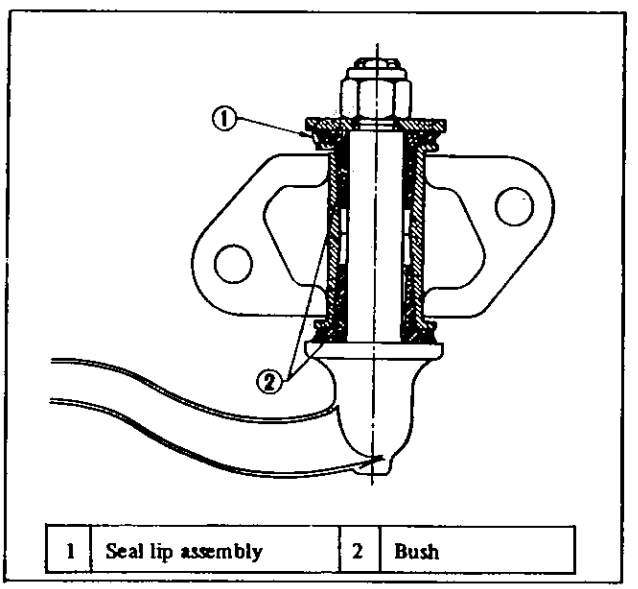
5. Remove the idler assembly from the side member by taking off two fixing bolts.

DISASSEMBLY

1. Disconnect both side rods from the cross rod under the same procedure as described in "Removal".

2. Loosen clamp bolts, unscrew the socket assembly, and remove the socket from the side rods.

3. Remove the idler arm nut and disassemble the idler assembly.



1	Seal lip assembly	2	Bush

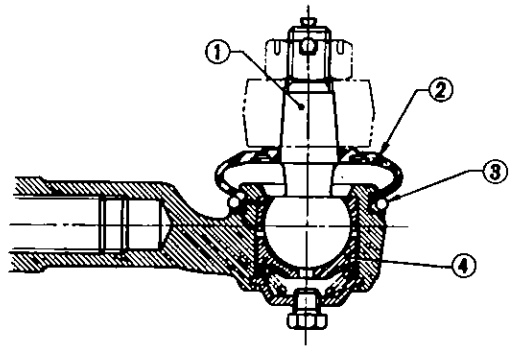
Fig. ST-25 Sectional view of idler arm

INSPECTION AND REPAIR

1. Check the idler rubber bushing for damage, wear and play, and replace bushing if necessary.

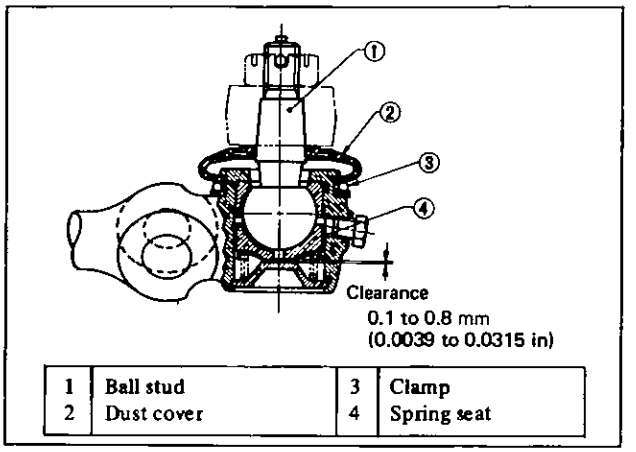
2. Check the cross rod and side rods for damage, bend and crack, and replace them if necessary.

3. Check each ball joints for play due to lack of spring action of the push spring or a damaged ball stud.



1	Ball stud	3	Clamp
2	Dust cover	4	Spring seat

Fig. ST-26 Sectional view of ball stud (side rod)



1	Ball stud	3	Clamp
2	Dust cover	4	Spring seat

Fig. ST-27 Sectional view of ball stud (cross rod)

If any abnormal condition is detected, replace as a complete unit. They can not be disassembled.

ASSEMBLY

Assembly can be accomplished in the reverse order of disassembly. Pay attention to the following points.

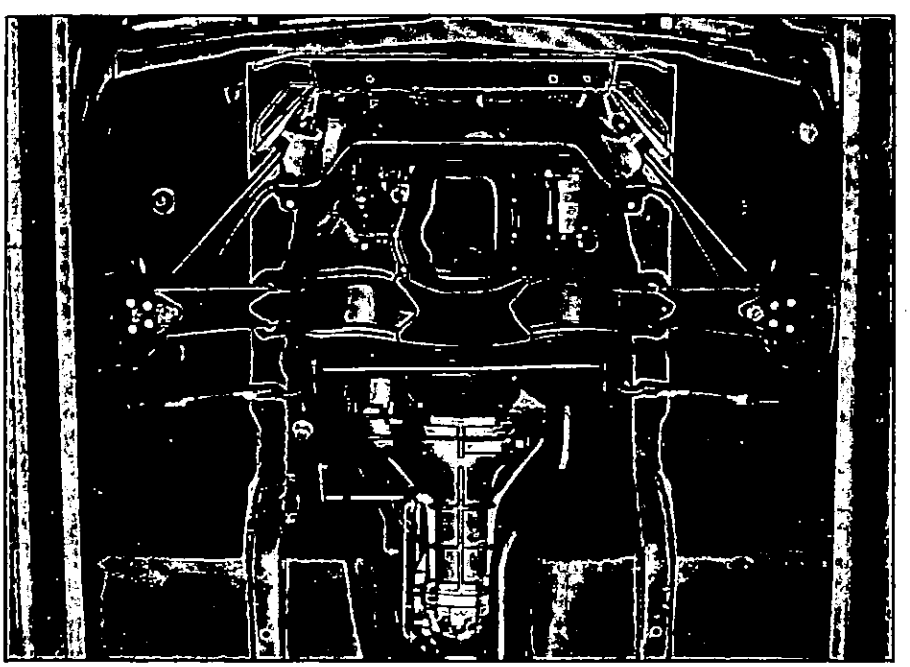


Fig. ST-28 Front bottom view of steering linkage on vehicle

1. The following tightening torque of nuts shall be adopted.

Ball stud nut
3.0 to 5.0 kg-m (21.7 to 36.2 ft-lb)

Gear arm nut
14 kg-m (101 ft-lb)

Idler arm nut
5.7 to 6.3 kg-m (41.2 to 45.6 ft-lb)

2. Assembly of the idler assembly is accomplished as follows.

(1) Apply soap water on the outer circumference of bushing.

Press the bushing into the idler arm carefully until the bushing protrudes equally at the both sides.

(2) Fit idler arm body in the rubber bushing.

Keep the idler arm center line in parallel with the chassis center line.

INSTALLATION

Installation can be accomplished in the reverse order of removal. Pay attention to the following points.

1. Set the length of both side rods to 296.8 mm (11.69 in). It should be done between the ball stud centers.

2. Check wheel alingment, and if necessary adjust it.

ACCIDENT (COLLISION)

When accident (collision) occurs unfortunately and the vehicle, especially its front unit, is damaged, conduct inspection in accordance with the following instruction:

Inspect the steering system particularly carefully because it is a very important unit for driving.

(1) Check both side steering angles for correct balance.

(2) With the tires positioned at neutral, check the steering wheel bar for correct position.

(3) Operate the steering system, and check it for sliding noise.

(4) Check the operation for smoothness.

(5) Check the side rod and cross rod for bending.

(6) Check the gear arm for crack.

(7) Check the gear housing tightening bolt for slackness and installation boss for crack.

(8) Check the sector shaft serration for twisting.

(9) Check the sector gear for crack.

(10) Check the ball screw for pitting.

(11) Check the column shaft for bending, crack, and sliding scar.

(12) Check the jacket tube for bending.

(13) Check the steering post clamp for existance of column offset.

(14) Check the side member gear housing installation unit for deformation.

(15) Check the portion of the steering post bracket installed on the steering post clamp for correct installation.

ADJUSTMENT

1. Toe-in

The procedure of toe-in adjustment is outlined in section "FRONT AXLE AND FRONT SUSPENSION".

2. Steering angle

Under the specified load (4 passengers), adjust the stopper bolt of the knuckle arm so that the inner wheel has an angle of 43°.

Note: Specified steering angle of wheel is 43° for inner wheel and 36°05' for outer wheel.

SERVICE DATA AND SPECIFICATIONS

Type		Recirculating ball type
Gear ratio		15.0 : 1
Steering wheel diameter	mm (in)	400 (15.7)
Oil capacity	ℓ (US pts/UK pts)	0.23 (0.486/0.405)
Steering angle inner wheel		43°
outer wheel		36°
Play steering wheel	mm (in)	20 to 25 (0.787 to 0.984)
Standard thickness of worm bearing shims	mm (in)	0.5 (0.0197)
Initial turning torque of column assembly	kg-cm (in-oz)	2.0 to 5.0 (27.8 to 69.4)
Clearance of adjusting screw to sector shaft	mm (in)	0.05 (0.0020)
Length of side rod	mm (in)	296.8 (11.69)

Tightening torque

Steering wheel lock nut	kg-m (ft-lb)	3.0 to 3.5 (21.7 to 25.3)
Steering post clamp to steering post bracket bolts	kg-m (ft-lb)	0.8 to 1.0 (5.8 to 7.2)
(Collapsible)	kg-m (ft-lb)	1.5 to 1.8 (10.8 to 13.)
Steering column hole cover bolts	kg-m (ft-lb)	0.8 to 1.0 (5.8 to 7.2)
Column to gear housing bolts	kg-m (ft-lb)	1.7 to 2.8 (12.3 to 20.2)
Side cover to gear housing bolts	kg-m (ft-lb)	1.7 to 2.8 (12.3 to 20.2)
Adjusting screw lock nut	kg-m (ft-lb)	2.0 to 3.0 (14.5 to 21.7)
Sector shaft to pitman arm nut	kg-m (ft-lb)	14 (101)
Gear housing to side main bar bolts and nuts	kg-m (ft-lb)	1.9 to 2.6 (13.7 to 18.8)
Idler arm nut	kg-m (ft-lb)	5.7 to 6.3 (41.2 to 45.6)
Idler arm to side main bar bolts and nuts	kg-m (ft-lb)	1.9 to 2.6 (13.7 to 18.8)
Ball stud nuts	kg-m (ft-lb)	3.0 to 5.0 (21.7 to 36.2)
Side rod bar lock nuts	kg-m (ft-lb)	8.0 to 10.0 (57.8 to 72.3)

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Heavy steering	Low tire pressure.	Inflate tires to recommended pressure.
	Incorrect front wheel alignment.	Adjust to specifications.
	Lack of lubrications.	Lubricate steering gear and ball joints or replace worn ball joint.
	Firm sticking of the ball joint and strut bearing.	Replace.
	Improper adjustment and damage of steering gear housing.	Adjust or replace according to instructions.
	Hard locking of column bearing.	Lubricate with bearing grease.
Loose steering	Incorrect front wheel bearing adjustment.	Adjust or replace as required.
	Loose steering linkage connections.	Inspect, replace worn parts, if any, and tighten nuts to recommended torque.
	Loose steering gear housing mounting.	Tighten mounting bolts to proper torque.
	Incorrect adjustment of adjust nut.	Adjust according to instructions.
Pull to one side	Incorrect tire pressure.	Inflate to recommended pressure.
	Incorrect front wheel alignment.	Inspect and correct front wheel alignment.
	Incorrect front wheel bearing adjustment.	Adjust bearings according to instructions.
	Unequal brake adjustment.	Adjust brakes.
	Weak front suspension units.	Replace.
	Deformation or improper fitting of suspension.	Check, correct or replace.
Steering shock	Incorrect front wheel alignment.	Inspect and correct front wheel alignment.
	Loose front wheel bearings.	Adjust bearings.
	Loose steering linkage connection and transverse link.	Inspect, replace worn parts, if any, and tighten nuts to proper torque.
	Incorrect adjustment of ball nut	Adjust steering gear according to instructions.
	Wheels out of balance.	Inspect and correct wheel balance.

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FE

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

FE

ENGINE CONTROL SYSTEM ..... FE- 1
FUEL AND EXHAUST PIPINGS ..... FE- 3

ENGINE CONTROL SYSTEM

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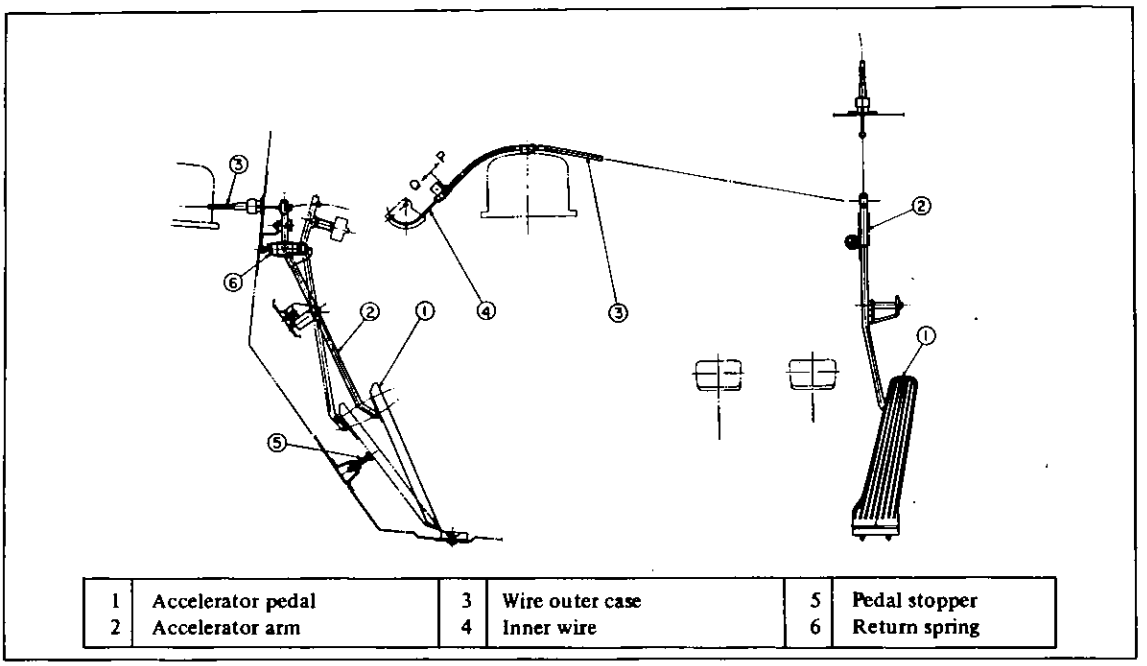
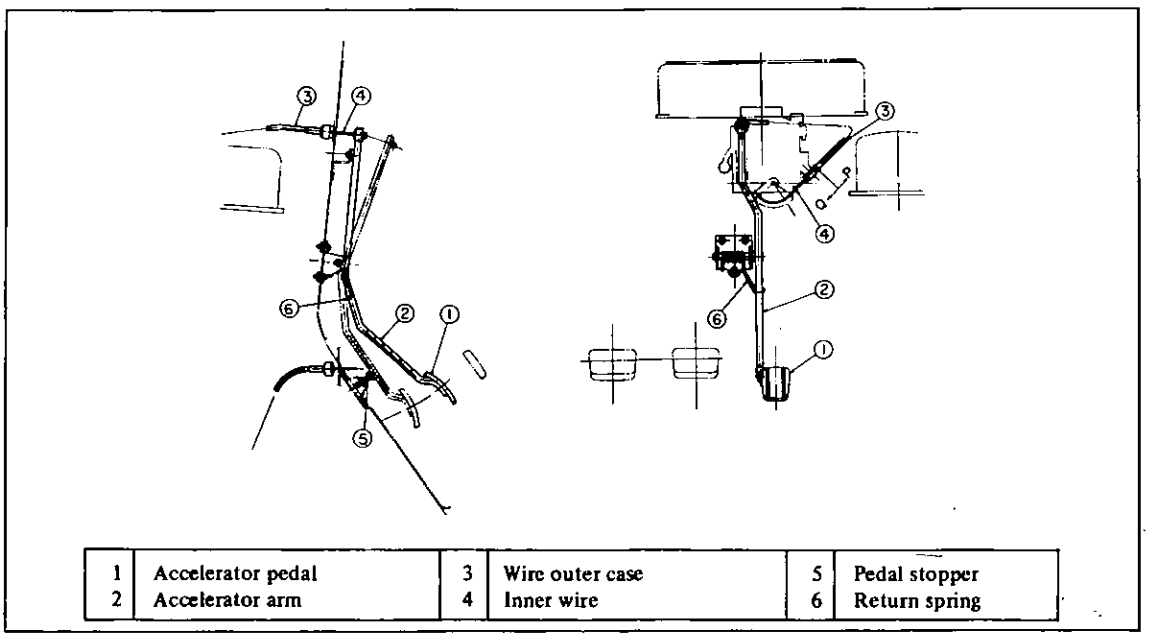
ACCELERATOR CONTROL



1	Accelerator pedal	3	Wire outer case	5	Pedal stopper
2	Accelerator arm	4	Inner wire	6	Return spring

Fig. FE-1 Accelerator control system for R.H drive



1	Accelerator pedal	3	Wire outer case	5	Pedal stopper
2	Accelerator arm	4	Inner wire	6	Return spring

Fig. FE-2 Accelerator control system for L.H. drive

Description

The accelerator linkage is lightweight, and construction is such that the linkage operates smoothly and is unaffected by engine vibration.

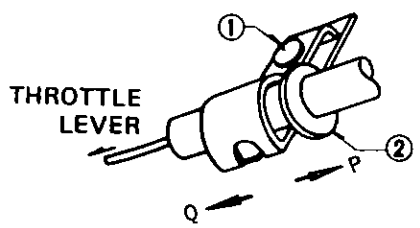
Adjustment

Play of accelerator wire

1. Install the pedal arm side securely with a spring clamp.

2. Set the dash-board side outer case stationarily with a cap nut. Do not set the carburetor side adjusting unit stationarily.

3. Pull up the carburetor side socket toward "P" direction up to such an extent that the throttle lever is about to move, pull down the socket 1 to 1.5 mm (0.0394 to 0.0590 in) from that position toward "Q" direction, and set the socket stationarily with a clamp.



1	Clamp	2	Socket

Fig. FE-3 Adjusting play of accelerator wire

Pedal stopper

Depress the accelerator pedal down to such an extent that the throttle lever fully opens, adjust stopper bolt height so that clearance between the accelerator pedal reverse side and stopper bolt head "T" is 0 to 1 mm (0 to 0.0394 in), and secure the stopper bolt with lock nut.

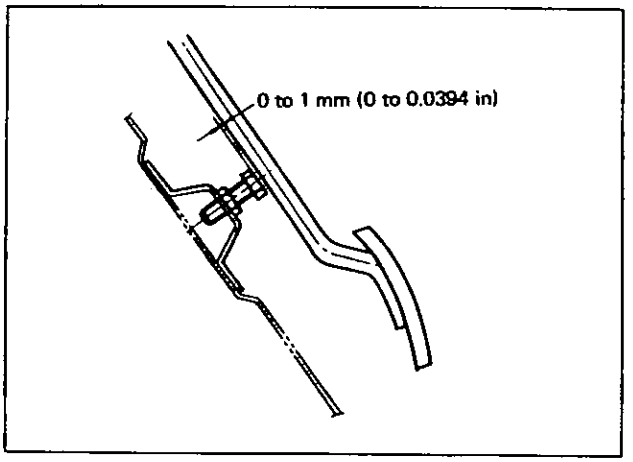
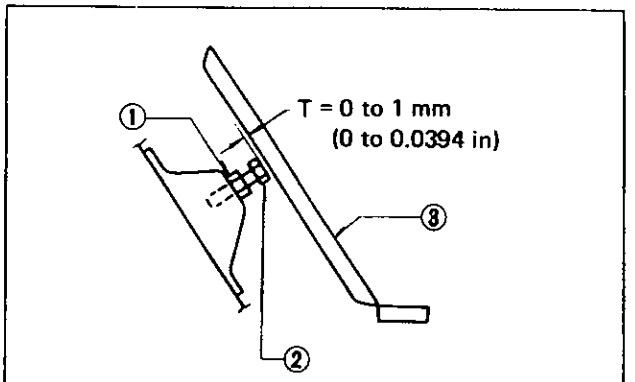


Fig. FE-4 Adjusting pedal stopper height (left hand steering)



1	Lock nut	3	Stopper bolt
2	Accelerator pedal		

Fig. FE-5 Adjusting pedal stopper height (right hand steering)

Note: a. Do not bend the accelerator pedal.

b. Adjust accelerator wire play and stopper bolt height correctly.

c. Apply chassis grease (No.0 or 1) to the sliding part of pedal bracket.

Model with automatic transmission

For model with automatic transmission, the pedal arm is equipped with kick down switch striker. This is only difference with the standard model.

Note: Note that the kick down switch should not come into contact with the pedal arm striker when the accelerator pedal is depressed.

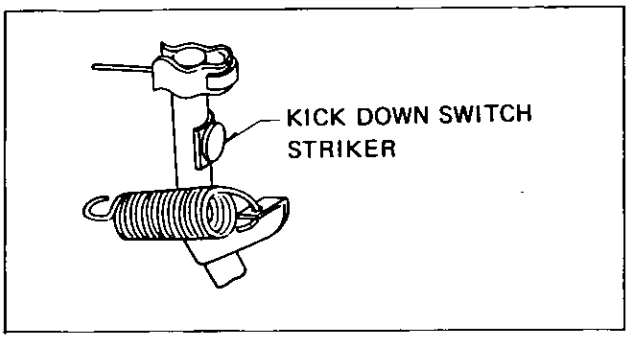


Fig. FE-6

	R.H drive	L.H drive
Pedal free play mm (in)	2 (0.0787)	2 (0.0787)
Pedal stroke mm (in)	48 (1.890)	50 (1.969)
Pedal depressing force when fully open kg (lb)	3.8 (8.4)	3.3 (7.3)

FUEL AND EXHAUST PIPINGS

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EXHAUST PIPE AND MUFFLER

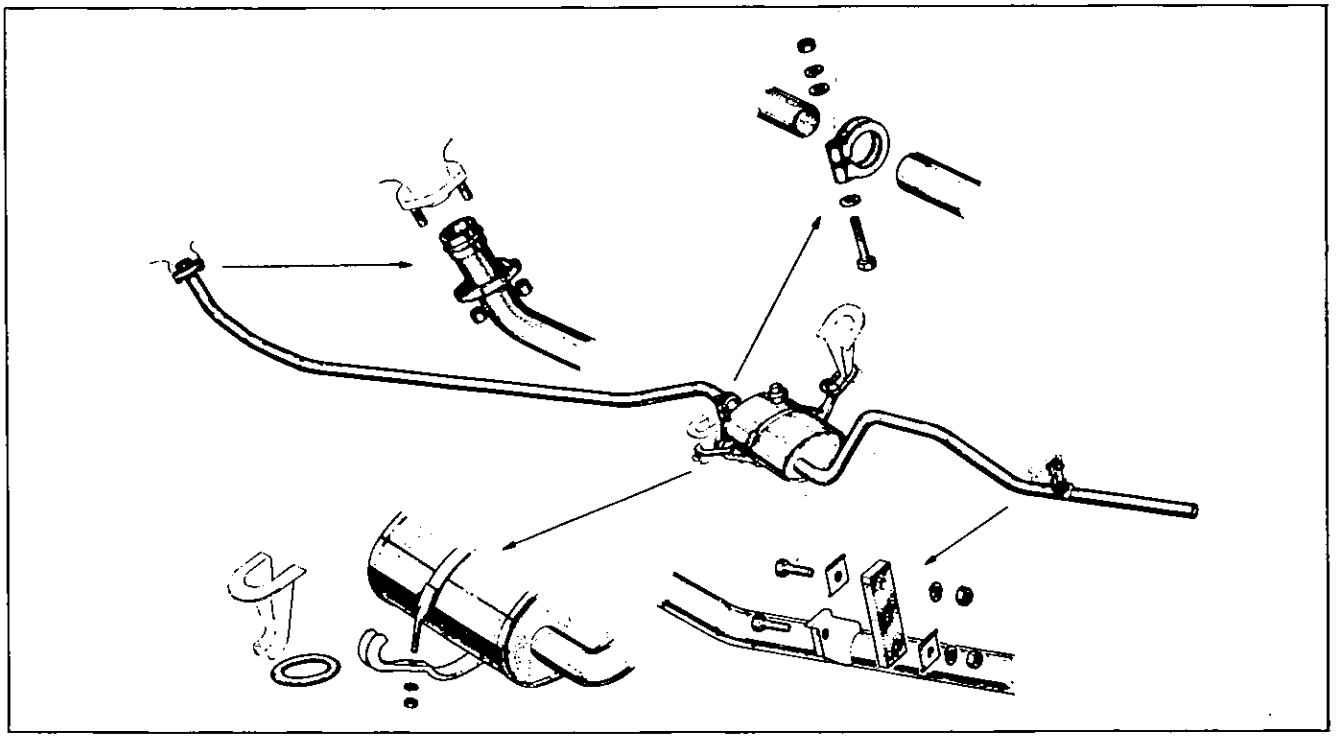

Fig. FE-7 Exhaust system

Description

For all models, sedan, wagon and coupe, the exhaust system uses a single front tube without using the pre-muffler. The main muffler is installed beneath the rear seat floor in the left side.

The component parts are separated mainly into the front tube and muffler with rear tube, and they are coupled with a clip at the muffler inlet. The muffler main unit is suspended from the body with hanger bracket and rubber ring, and the rear tube is suspended from the floor with strap.

Precautions for removal and installation

1. When there is no clearance between the front tube and floor or propeller shaft, turn the tube along center line of tube in the manifold connecting unit, and obtain a proper clearance.

2. Muffler front tube inserting depth is approximately 60 mm (2.362 in).

3. When suspending the muffler main unit with rubber ring, line up the hunger of the muffler main unit straight against the bracket in the body side.

FUEL TANK AND PIPING

Description

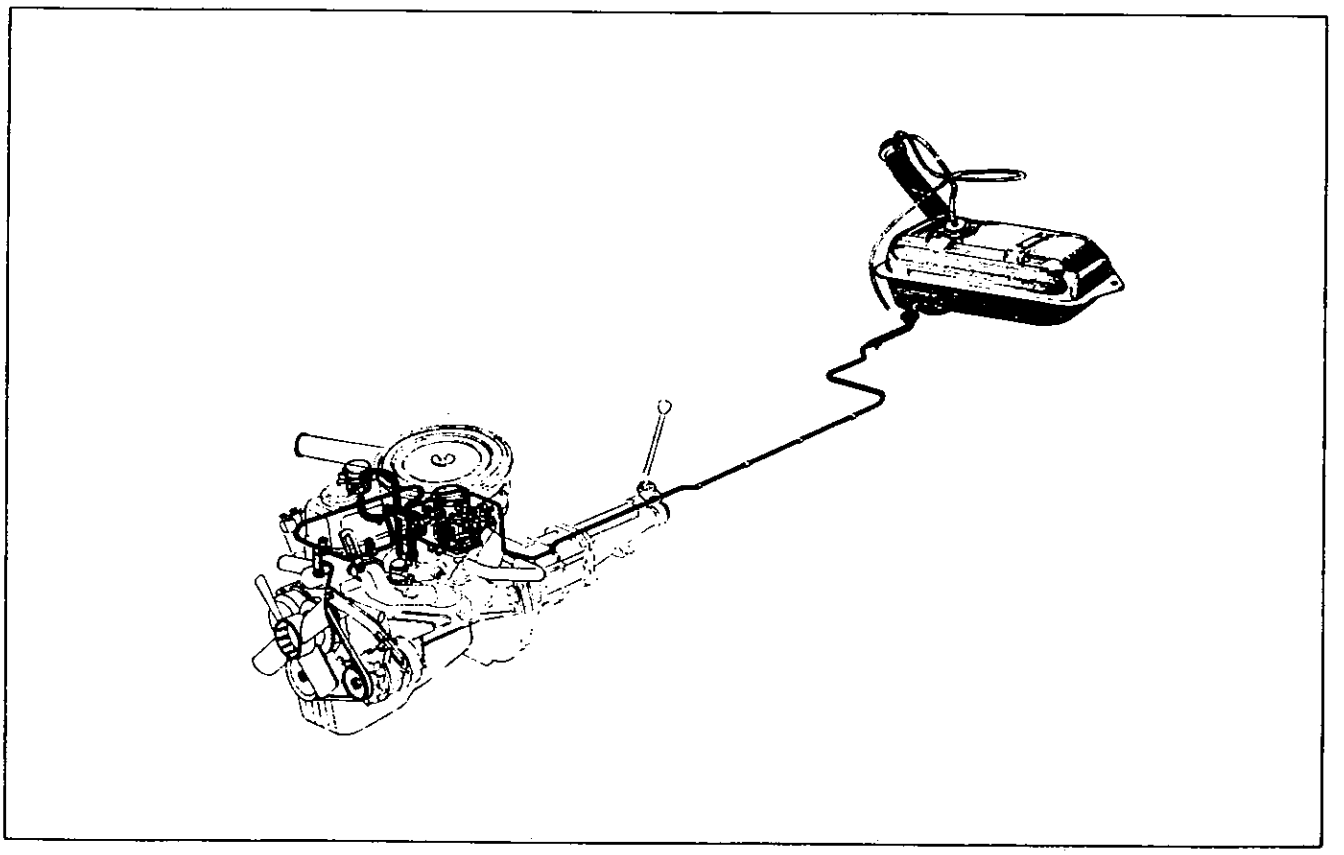

Fig. FE-8 Fuel system

For all models, fuel tank capacity has been increased in response to the increased engine output. Location and mounting strength are improved for improvement of safety.

Sedan	40 ℓ	(10.57 US gal) (8.81 Imp gal)
Wagon	38 ℓ	(10.04 US gal) (8.37 Imp gal)
Coupe	38 ℓ	(10.04 US gal) (8.37 Imp gal)

Also for piping, consideration has been given on the safety. To be more specifically, the fuel line coming out from the fuel tank is laid inside the rear side member so that the fuel line is protected from gravel and other interferences from road. In the front floor section, the fuel line is laid inside a tunnel, and thus, fuel line reaches the engine compartment.

In addition, the fuel strainer and fuel tank outlet units connect the fuel line with rubber hoses, and for all other sections, bandy tube is used.

Replacement

1. Remove the drain plug from the fuel tank bottom, and completely drain fuel.
2. Remove the fuel line connector.
3. Remove the luggage compartment finishing.
4. Remove four bolts used to secure the fuel tank.
5. Loosen the hose clamp.

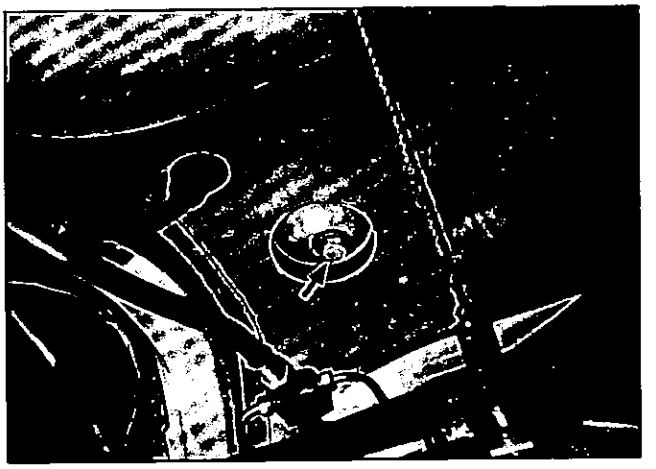

Fig. FE-9 Drain plug position

6. Disconnect cable to the unit gauge.
7. Dismount the fuel tank.

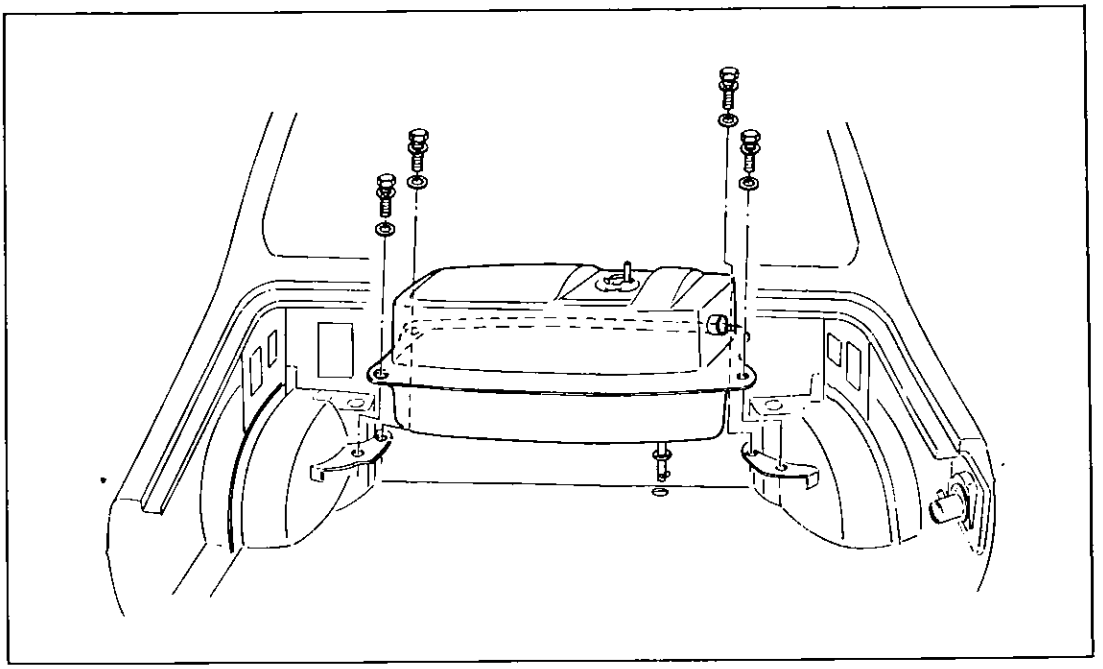

Fig. FE-10 Fuel tank unit installation

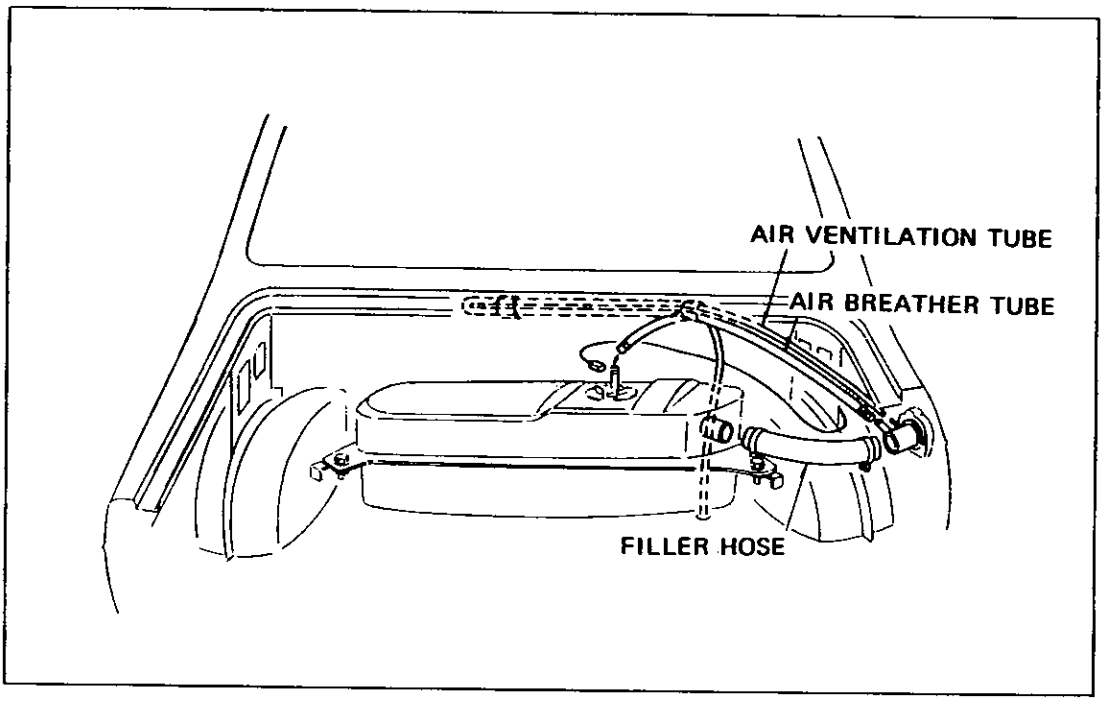

Fig. FE-11 Hose and tube installations

VAN SERIES

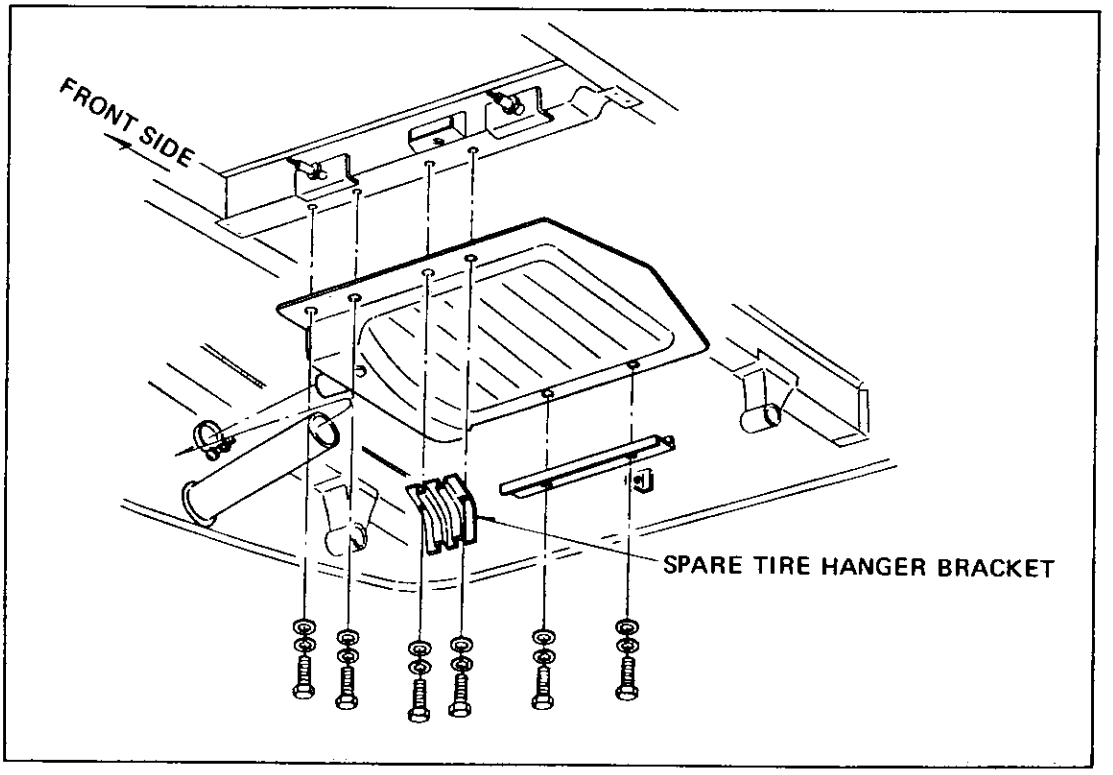

Fig. FE-12 Fuel tank unit installation

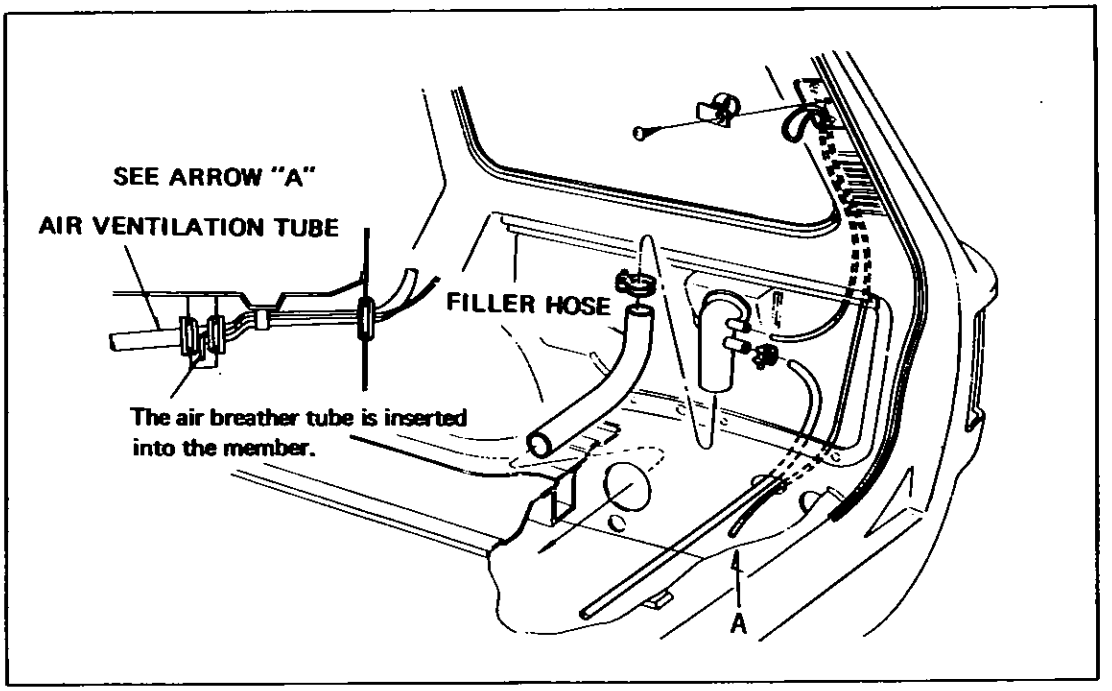

Fig. FE-13 Hose installations

COUPE

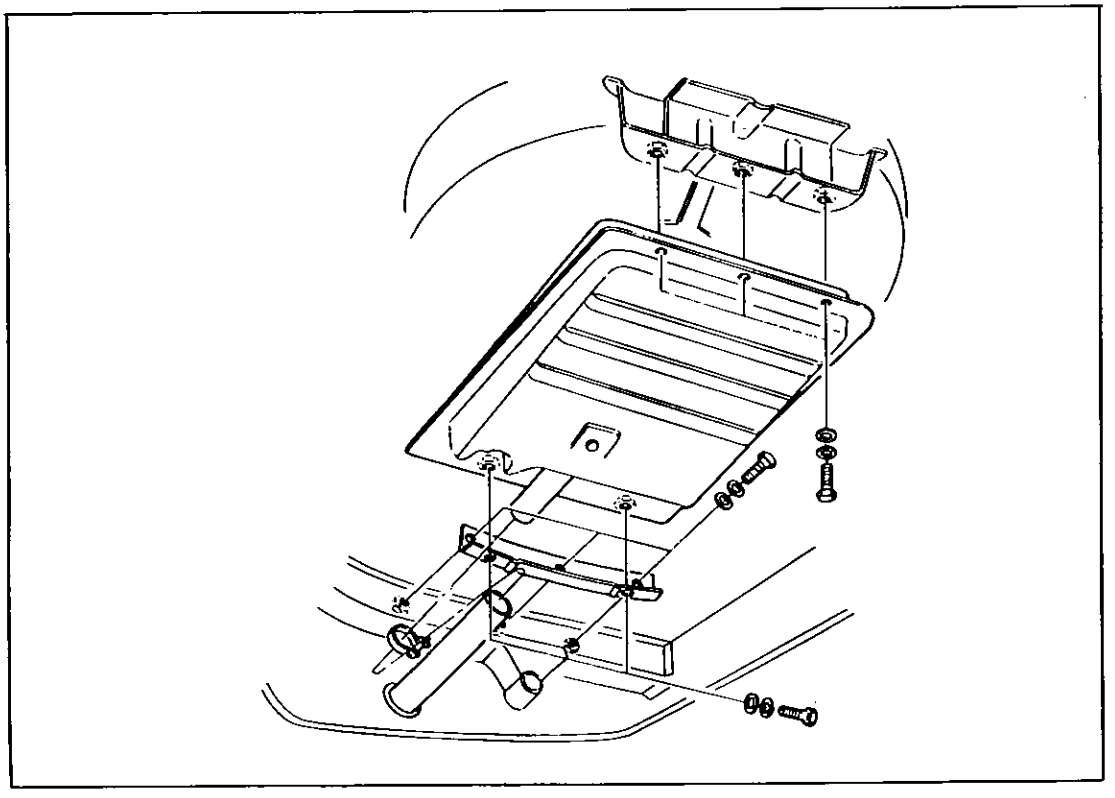

Fig. FE-14 Fuel tank unit installation

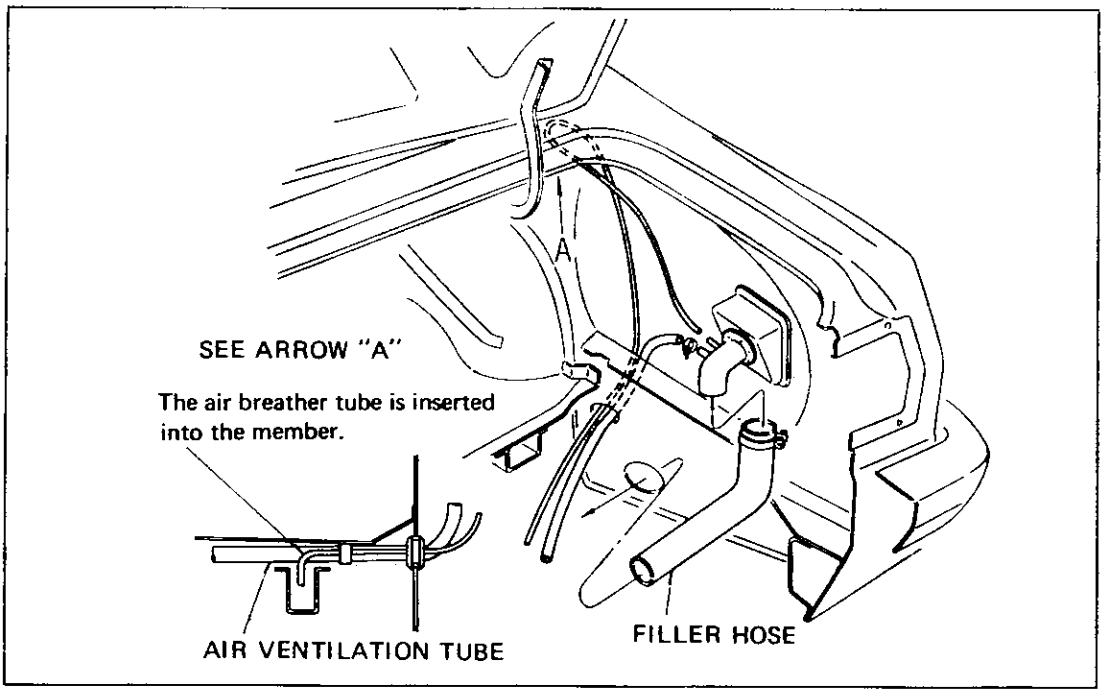

Fig. FE-15 Hose installations

Inspection and repair

1. Check the fuel line for leaking or other damage, and repair or replace as required.

Note: a. When soldering is required, be sure that no gasoline is remained.

b. When cleaning fuel tank inside, use gasoline. Do not use water.

2. The gauge unit adopts a bayonet system, and thus, the gauge unit can be removed and reinstalled simply with a screwdriver.

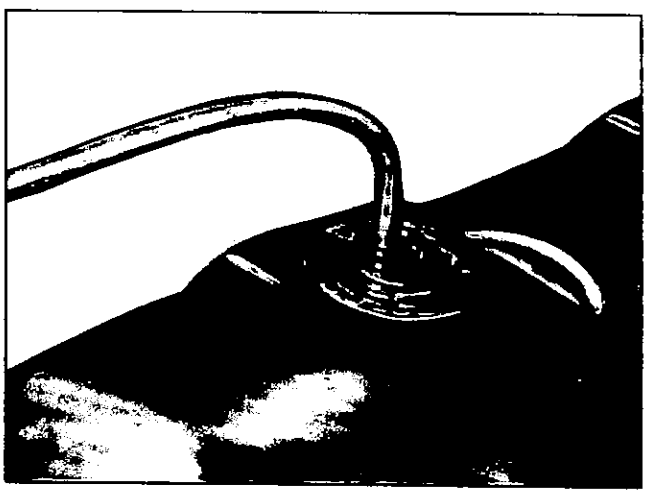

Fig. FE-16 Gauge unit

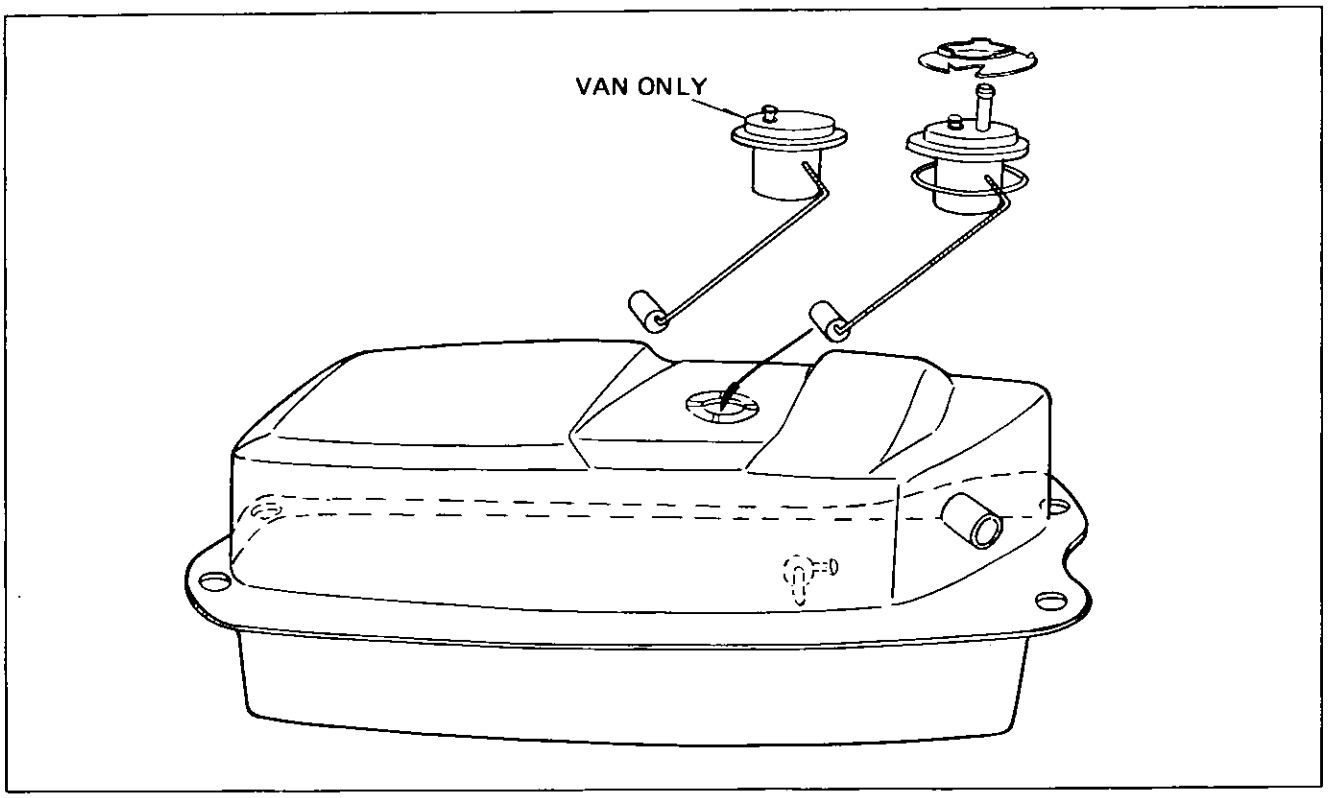

Fig. FE-17 Fuel tank unit gauge installation

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION BF

BODY

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GENERAL DESCRIPTION

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DESCRIPTION

The body construction is of an unit type. The individual body components which require high strength adopt a box cross-section improving torsional rigidity, and the highly rigid structural components are joined under special connecting construction which reduces centralizing of stress.

Particularly, for protection of passenger from side collision, side section of the body is constructed with side member having box cross-section improving the rigidity, and the front and rear side members are so constructed that they are deformed in the event of forward or rearward collision absorbing an energy generated from the collision.

There are three types of body construction; sedan, coupe, and station wagon or van, however, the front section is used commonly.

BODY CONSTRUCTION AND CROSS-SECTIONAL VIEW

The body construction, cross-sectional views, and sealing points are indicated as follows:

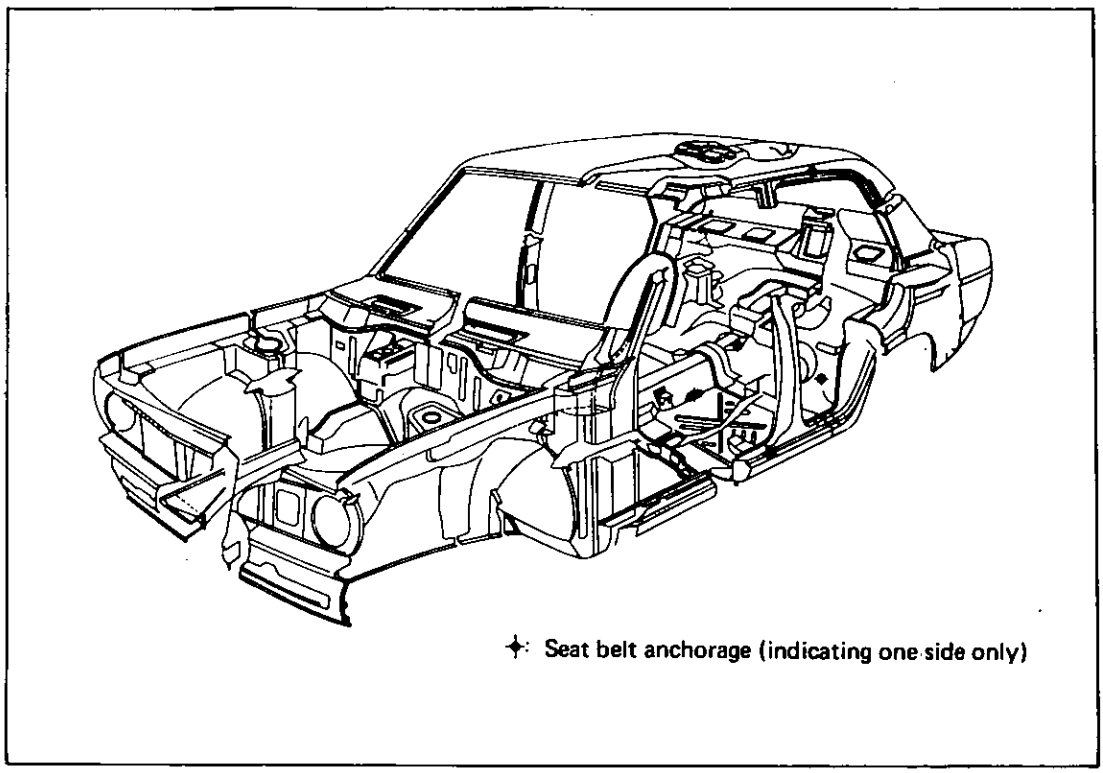


Fig. BF-1 Body construction (4-door sedan)

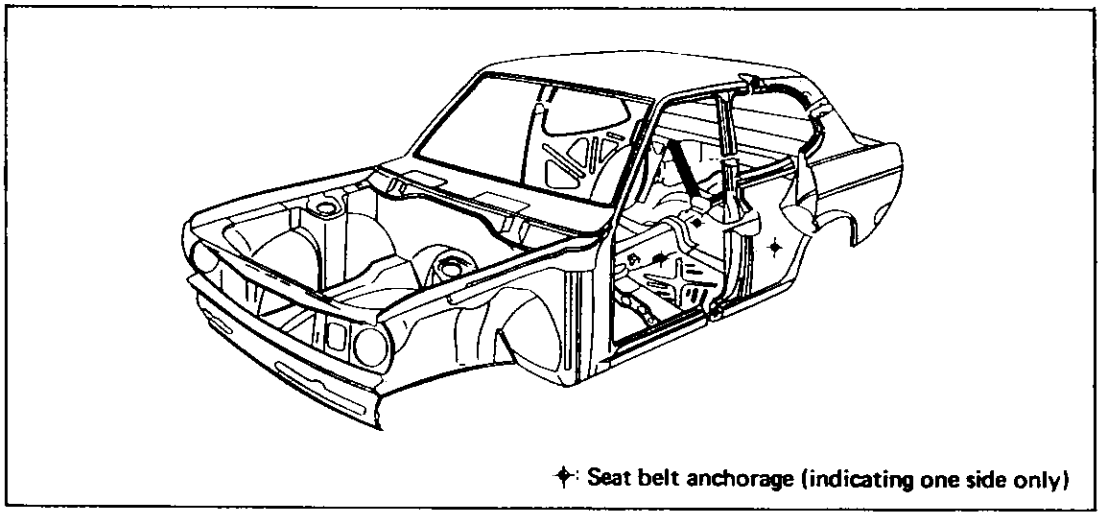


Fig. BF-2 Body construction (2-door sedan)

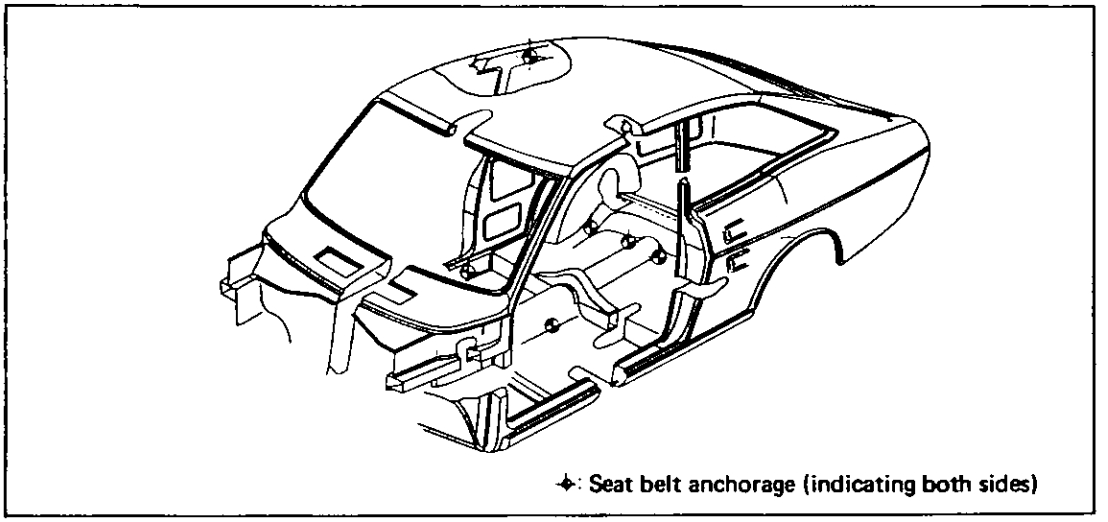


Fig. BF-3 Body construction (coupe)

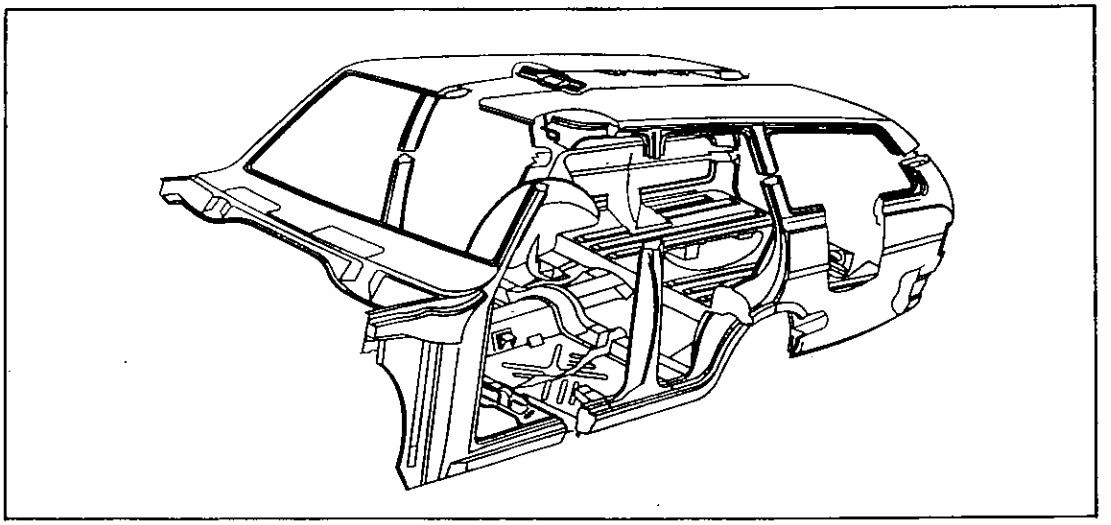
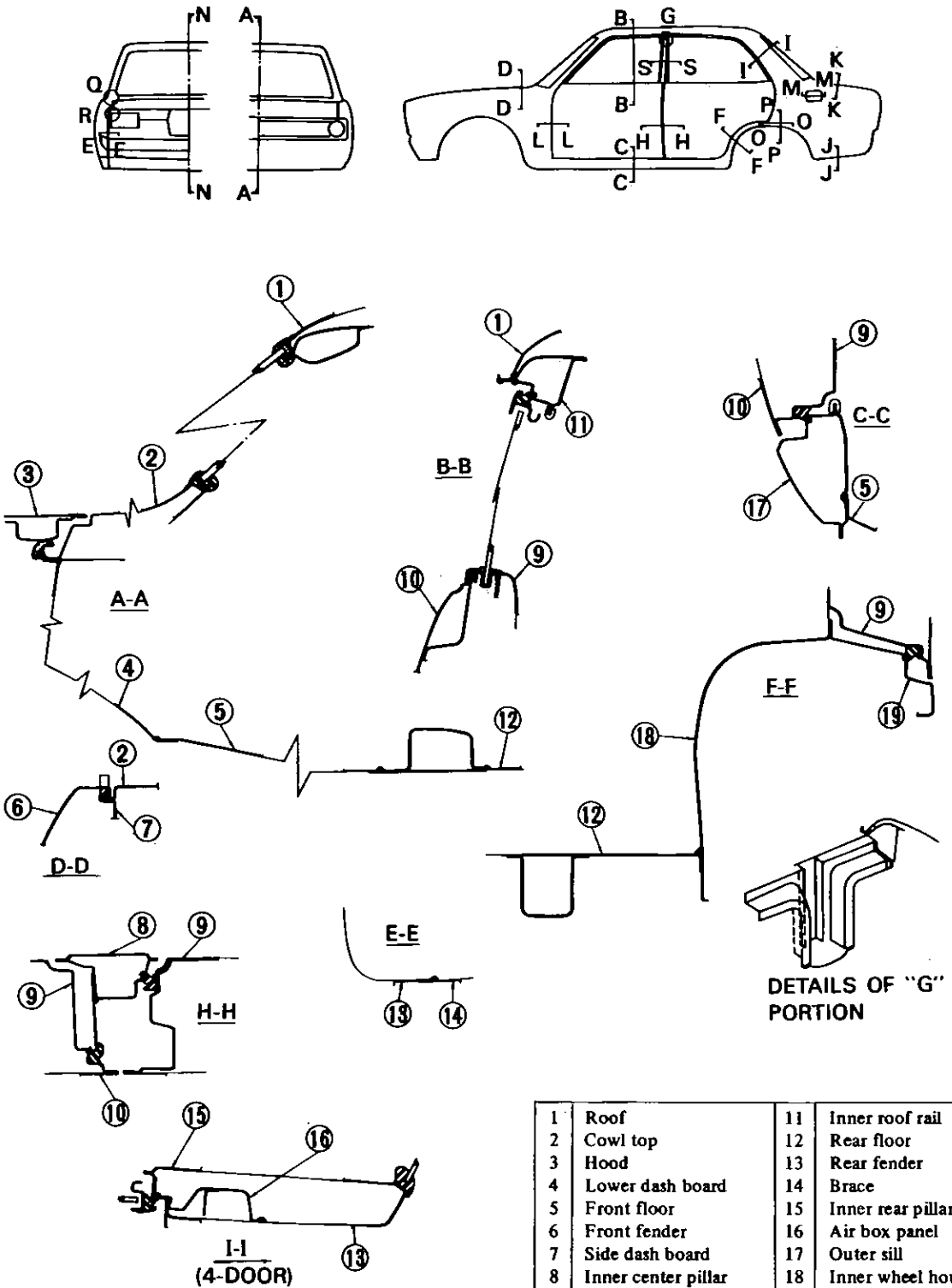


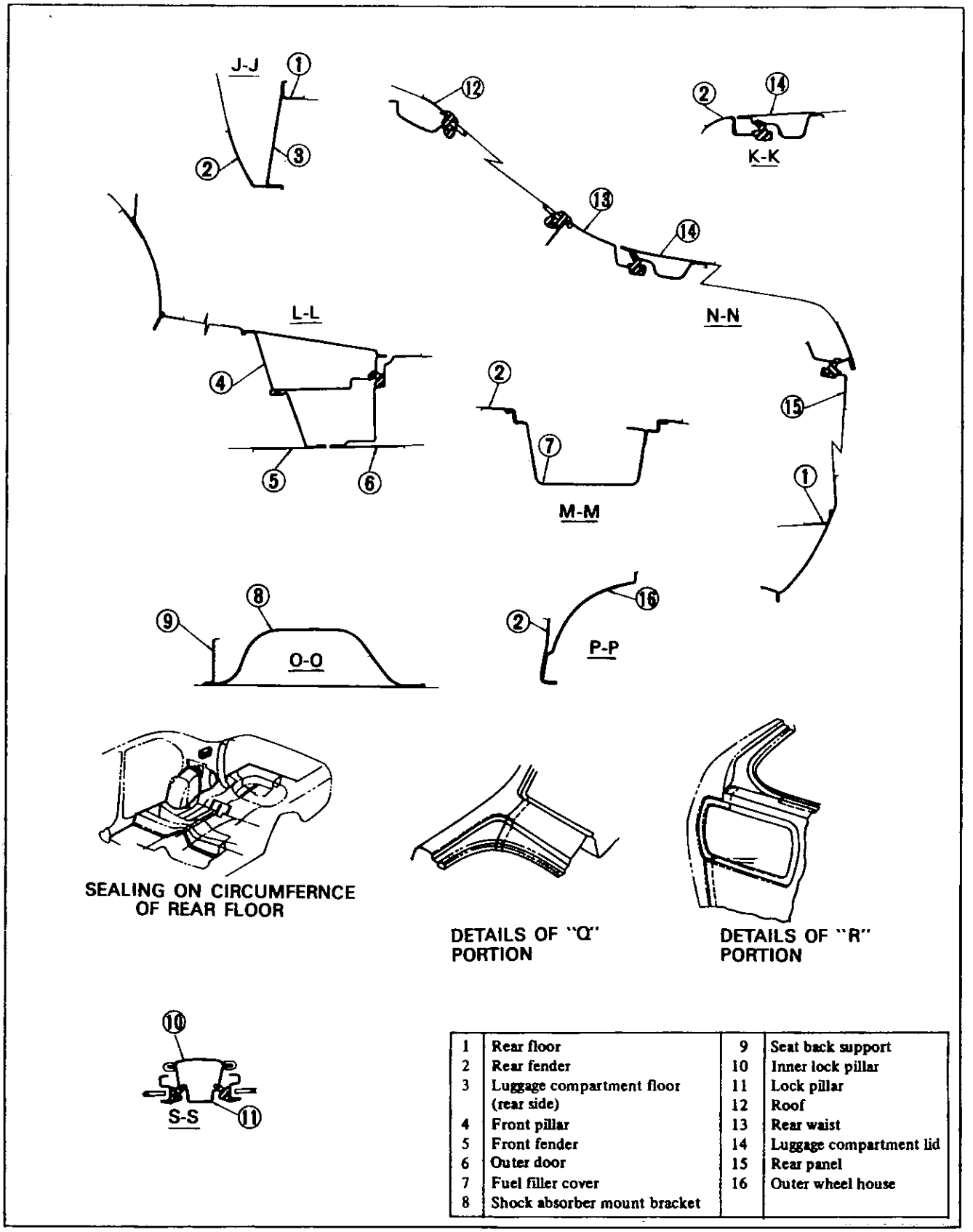
Fig. BF-4 Body construction (station wagon or van)

SEDAN



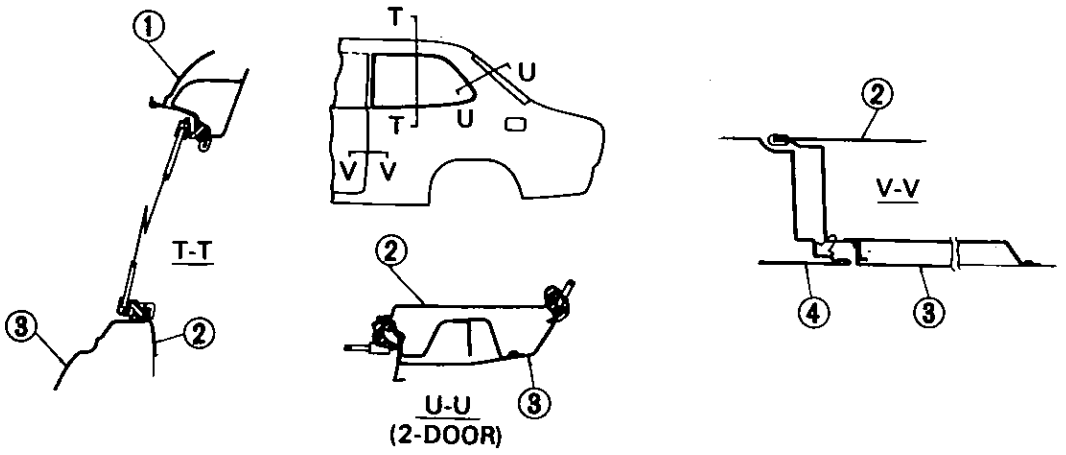
1	Roof	11	Inner roof rail
2	Cowl top	12	Rear floor
3	Hood	13	Rear fender
4	Lower dash board	14	Brace
5	Front floor	15	Inner rear pillar
6	Front fender	16	Air box panel
7	Side dash board	17	Outer sill
8	Inner center pillar	18	Inner wheel house
9	Inner door	19	Outer wheel house
10	Outer door		

Fig. BF-5 Cross-sectional view (I)

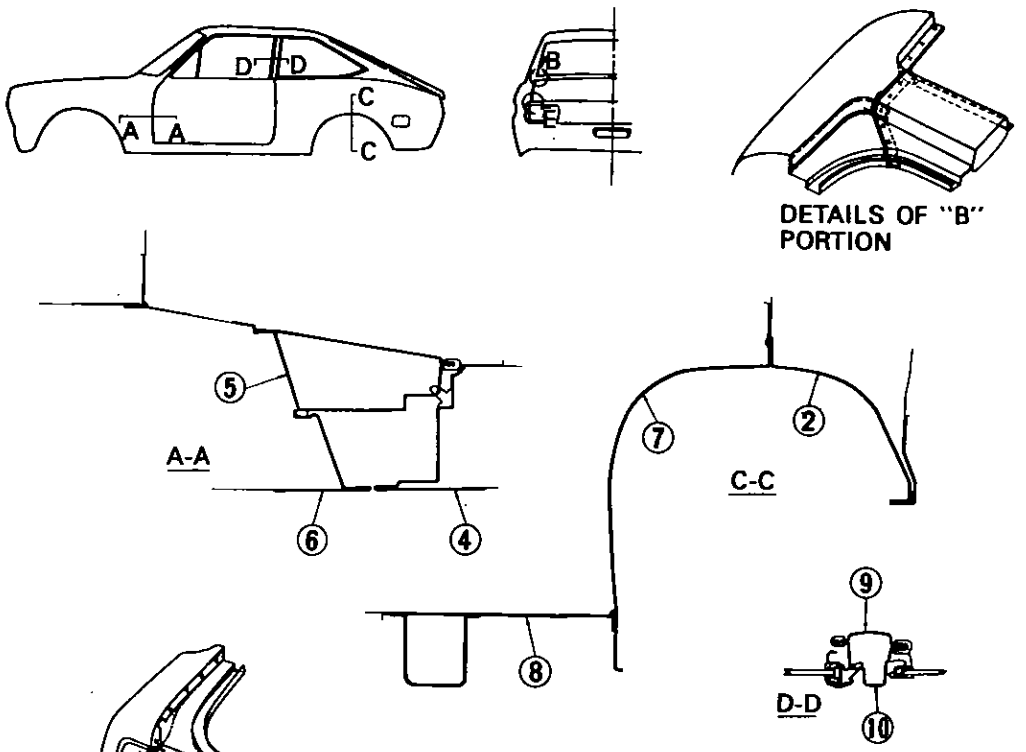


1	Rear floor	9	Seat back support
2	Rear fender	10	Inner lock pillar
3	Luggage compartment floor (rear side)	11	Lock pillar
		12	Roof
4	Front pillar	13	Rear waist
5	Front fender	14	Luggage compartment lid
6	Outer door	15	Rear panel
7	Fuel filler cover	16	Outer wheel house
8	Shock absorber mount bracket		

Fig. BF-6 Cross-sectional view (II)



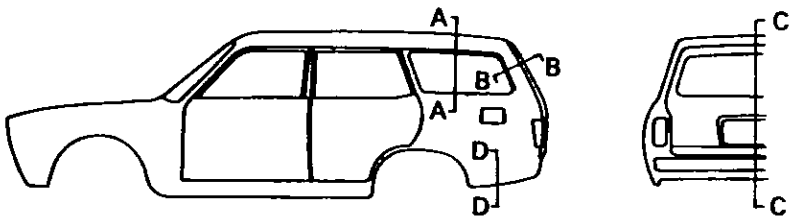
COUPE

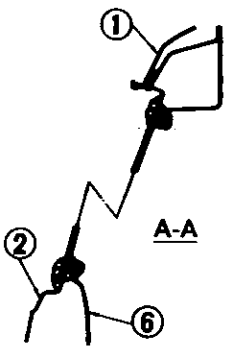


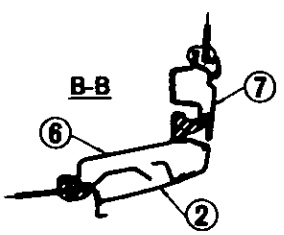
1	Roof	6	Front fender
2	Inner side body	7	Inner wheel house
3	Rear fender	8	Rear floor
4	Outer door	9	Inner lock pillar
5	Front pillar	10	Lock pillar

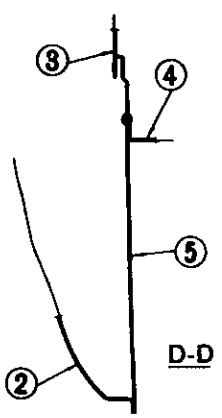
Fig. BF-7 Cross-sectional view (III)

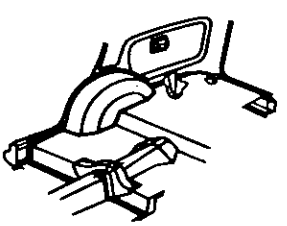
STATION WAGON OR VAN



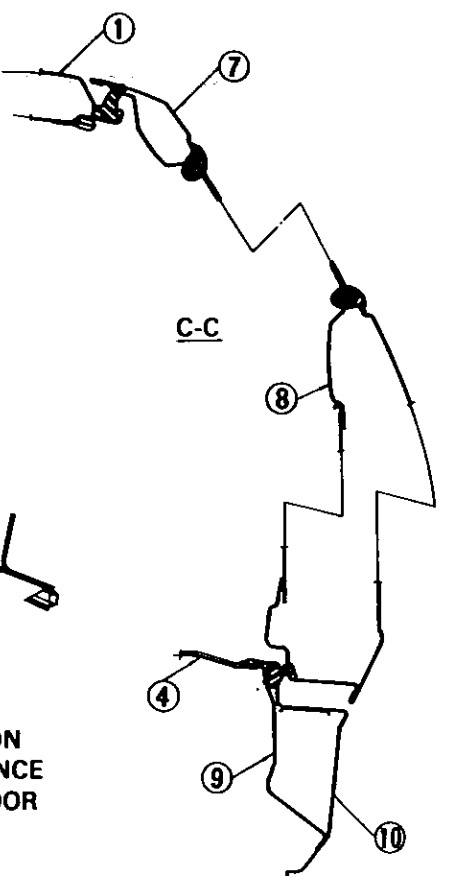








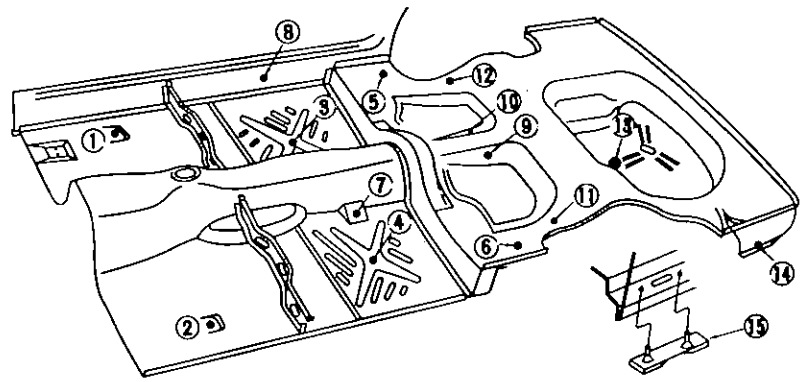
SEALING ON CIRCUMFERENCE OF REAR FLOOR



1	Roof	6	Inner side body
2	Rear fender	7	Outer back door
3	Sealing screen	8	Inner back door
4	Rear floor	9	Tail cross-member
5	Side rear floor	10	Rear panel

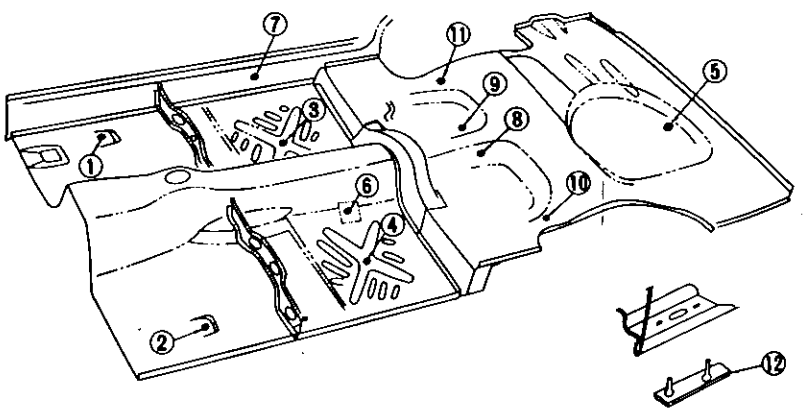
Fig. BF-8 Cross-sectional view (IV) – Station wagon or van

Water drain holes are located as shown in the following figure. Be sure to provide all water drain holes with grommets.



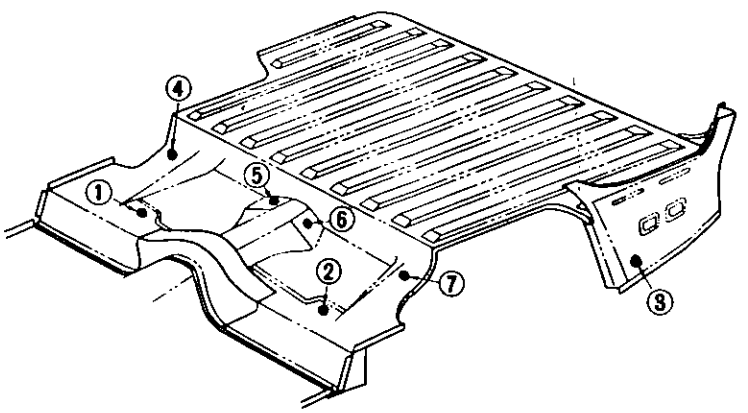
1 to 6	Rubber plug
7 to 12	Seat belt anchorage hole plug
13	Inspection hole plug
14	Drain plug
15	Drain hole cover

Fig. BF-9 Location of water drain hole (sedan)



1 to 4,5	Rubber plug
6 to 11	Seat belt anchorage hole plug
12	Drain hole cover

Fig. BF-10 Location of water drain hole (coupe)



1 to 3	Rubber plug
4 to 7	Seat belt anchorage hole plug

Fig. BF-11 Location of water drain hole (station wagon or van)

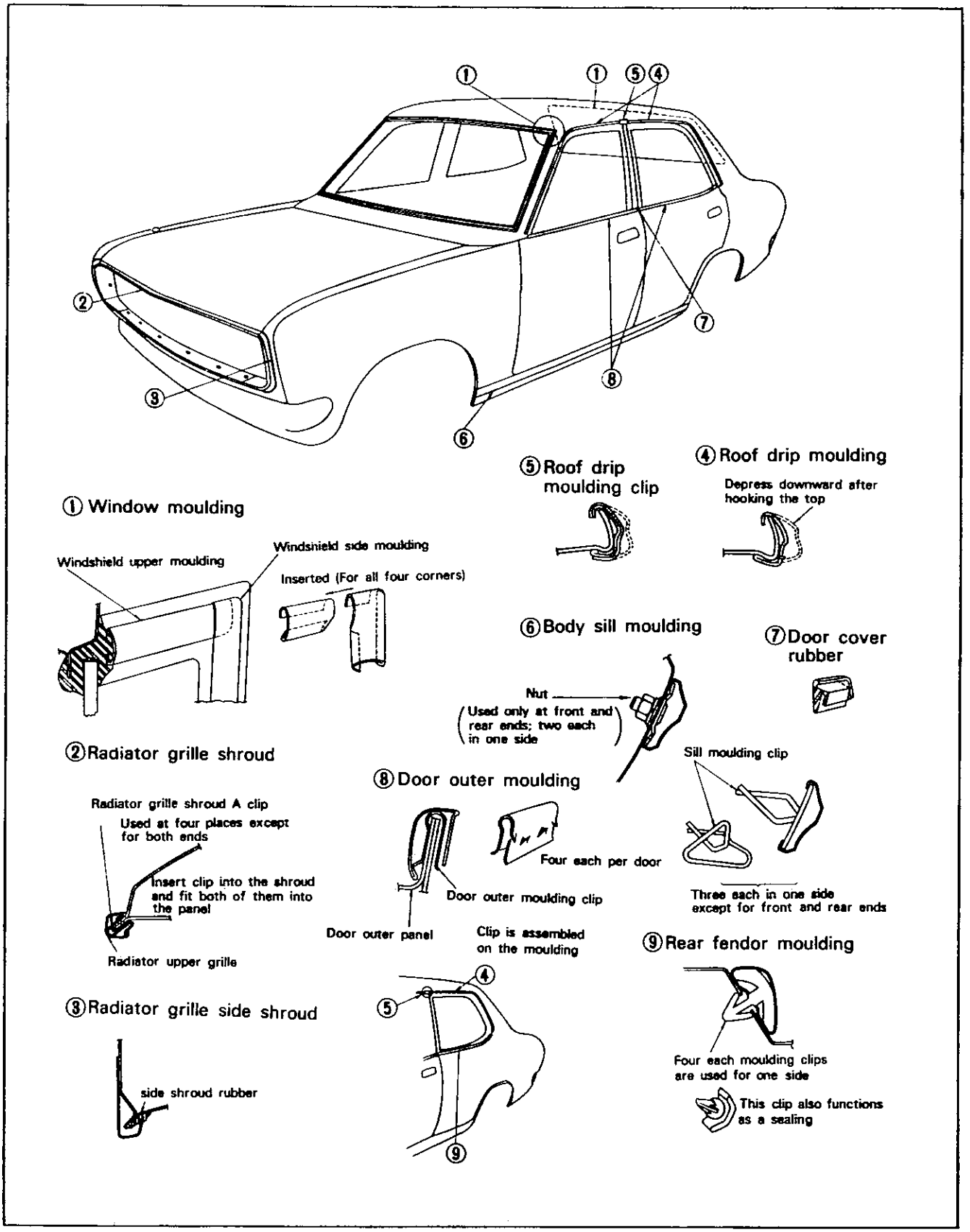


Fig. BF-12 Moulding installation

UNDER BODY ALIGNMENT

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UNDERBODY GENERAL SERVICE INFORMATION ..... BF- 9
ALIGNMENT CHECKING PROCEDURE ..... BF- 9
PRINCIPLES OF TRAMMING ..... BF- 9
CAR PREPARATION BF-10
TRAMMING SEQUENCE BF-10

UNDERBODY GENERAL SERVICE INFORMATION

Since each underbody component directly affects the overall strength of the body, it is essential that proper welding, sealing and rust-proofing techniques be observed during service operations.

Whenever the body is repaired, be sure to provide the repaired body parts with rust-proof.

In the case of a rust-proofing critical underbody component, it is essential that a good quality type air dry primer such as corrosion resistant zinc chromate be used.

Do not use combination type primer surfacers.

ALIGNMENT CHECKING PROCEDURE

Misalignment in the underbody affects the front fender, door, trunk lid and window alignments, and also the tail gate and rear body opening alignments in the case of a station wagon or van. Underbody misalignment particularly affects the suspension system, thereby causing various problems that arise from suspension misalignment. It is essential that underbody components be aligned within the specified dimensions given in Figures BF-13, 14 and 15.

In the event of collision damage, it is important that underbody alignment be thoroughly checked and if necessary, realigned to the specified dimensions.

There are many tools that may be employed to correct collision damage such as frame straightening machines, external pulling equipment, other standard body jacks.

To assist in checking alignment of the underbody components, repairing minor underbody damage or locating replacement parts, the following underbody dimensions and alignment checking information are presented.

PRINCIPLES OF TRAMMING

All reference locations shown in Figures BF-13, 14 and 15, are symmetrical at the center-line of the vehicle. For example, when performing a cross-check of the body floor panel dimensions (Figures BF-13, 14 and 15), the diagonal measurement should be the same in both directions. Cross checking operations are used to determine the relationship between two locations on the underbody.

To measure the distance between any two reference points on the underbody accurately, two specifications are required:

1. The horizontal dimension between the two points to be measured.

2. The vertical dimension from the datum line to the points to be measured. For an example, the diagonal measurement (calculated on a horizontal plane) between reference points of dimension line L shown in Figure BF-13 is 631.3 mm (24.8 in). The specifications from the datum line have a vertical height difference of 11.6 mm (0.456 in) between the forward location of dimension "L" [at vertical dimension 80.0 mm (3.150 in)] and the rearward location of dimension "L" [at vertical dimension 91.6 mm (3.606 in)]. The vertical pointer used at the forward location should be positioned so as to extend 11.6 mm (0.456 in) further from the tram bar than the

pointer used at the rearward location. With the proper settings the tram bar will be on a plane parallel to that of the body. The exception to this would be when one of the reference locations is included in the misaligned area, then the parallel plane between the body and the tram bar may not prevail. After completion of the repairs, the tram gauge should be set at the specified dimension to check the accuracy of the repair operation.

CAR PREPARATION

Preparing the car for the underbody alignment checx involves the following.

1. Place the car on a level surface.

2. The weight of the car should be supported at the wheel locations.

3. A visual damage inspection should be made to eliminate unnecessary measuring. Obviously damaged or misaligned areas may often be located visually.

TRAMMING SEQUENCE

The tramming sequence will vary depending upon the nature and location of the misaligned area. Prior to performing any tramming operation, the accuracy of reference points to be used must be determined. A measurement that originates from a reference point included in a damaged area will produce untrue results and confuse the evaluation of the underbody condition. Unlike the conventional type of frame design, the unitized type of body construction seldom develops the condition of "diamond" in the floor pan area as a result of front or rear end collision. Therefore, underbody alignment checking can usually originate from the body floor pan area. If inspection indicates that these locations have been disturbed and are not suitable for measuring, one of the undamaged suspension locations should be used as an initial reference point. If a rare situation should exist where all of these locations are not suitable as reference points, repair operations should begin with the body floor pan area. All other underbody components should be aligned progressively from this area.

MEMO:

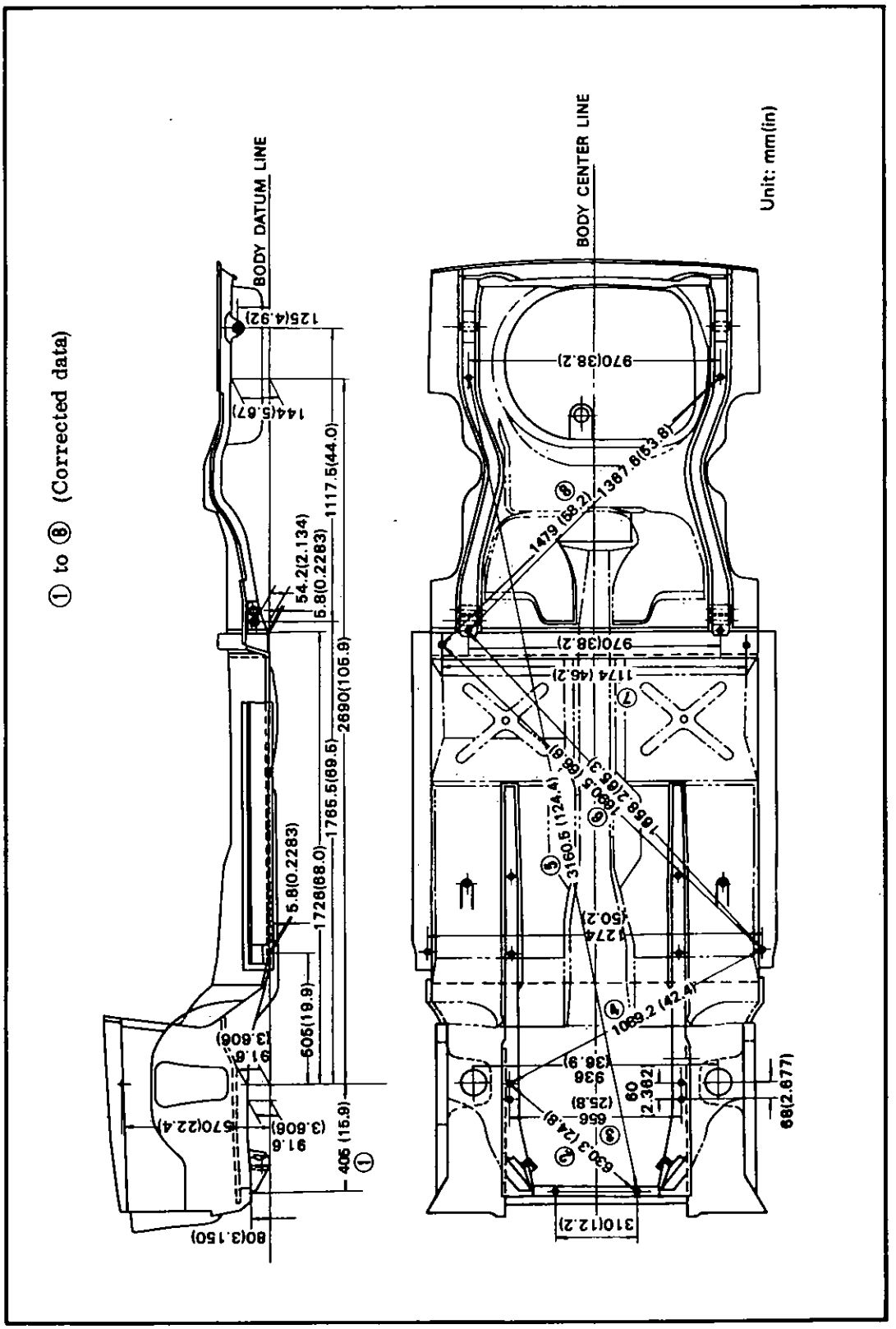

Fig. BF-13 Body alignment (sedan)

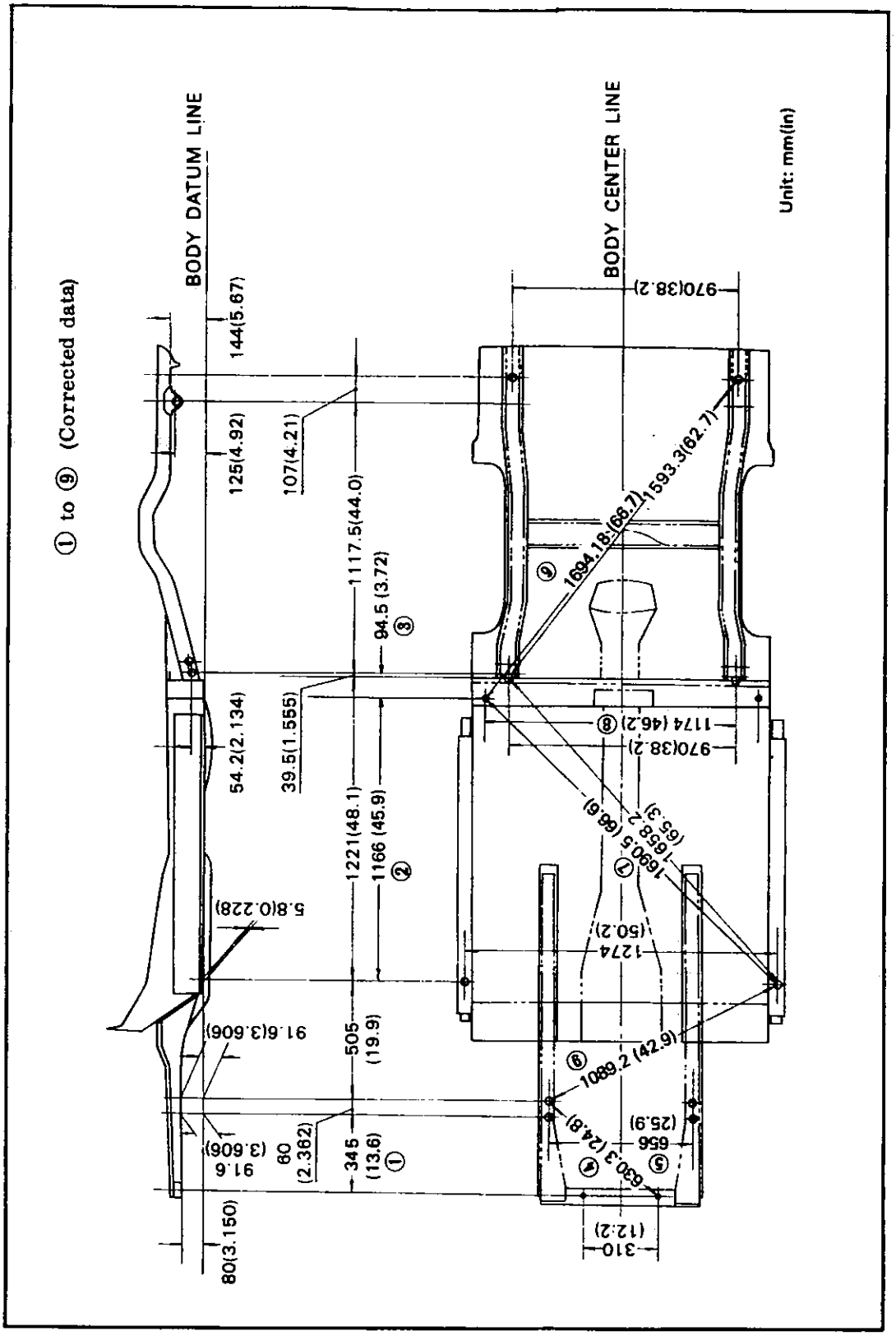

Fig. BF-14 Body alignment (coupe)

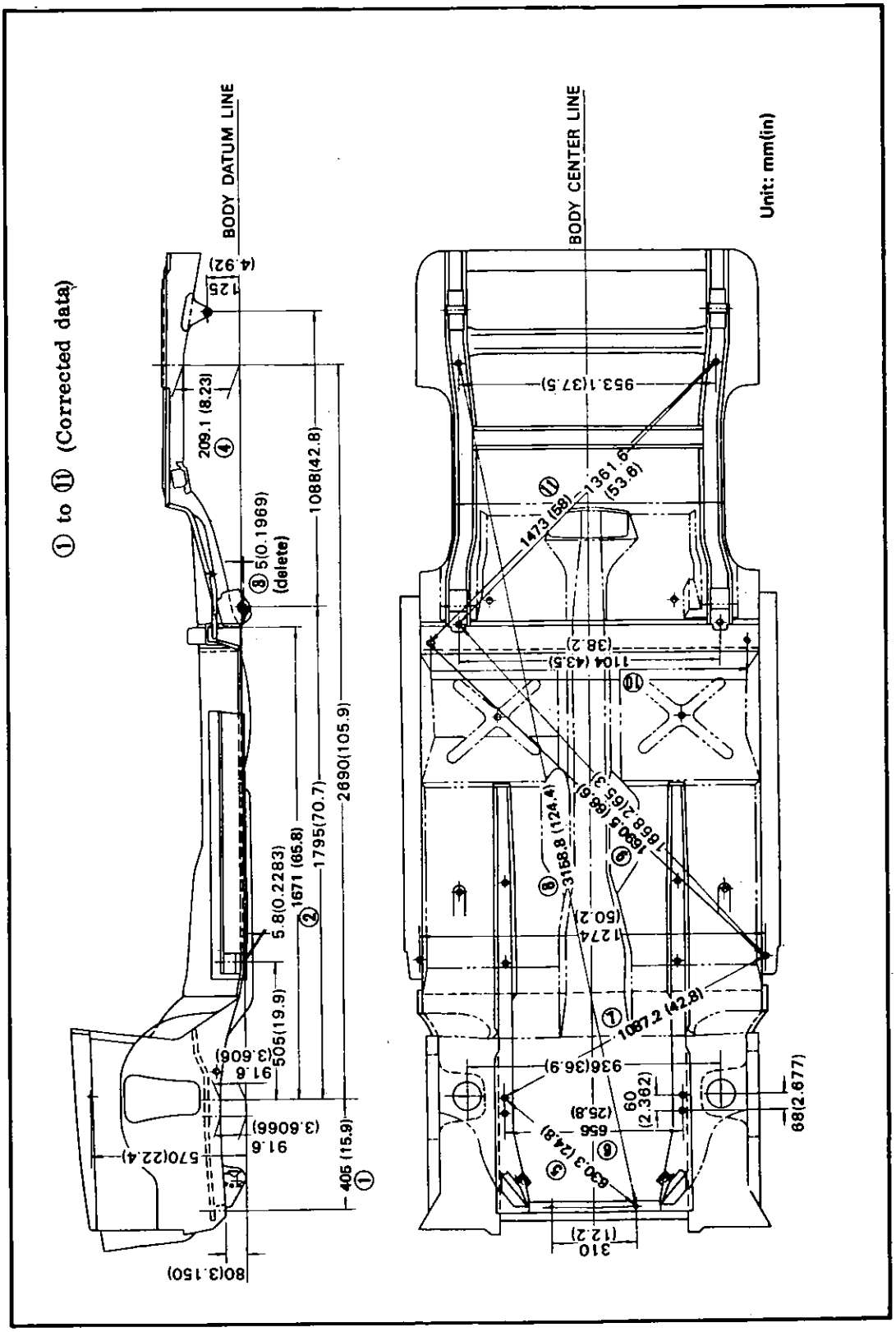

Fig. BF-15 Body alignment (station wagon or van)

HOOD

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Installation BF-14
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Removal BF-14
Adjustment BF-15

REMOVAL AND INSTALLATION

Removal

1. Disconnect the windshield washer hose at the nozzle.

2. In order to protect the hood from damaging, place rag in both sides of the hood rear end, loosen the hood hinge installation bolts, and remove the hood, supporting it from both sides as shown in the following figure. (Two workers are required.)

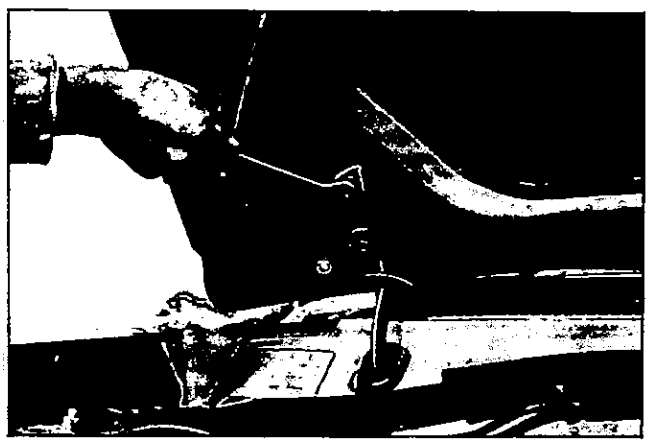

Fig. BF-16 Removing hood hinge

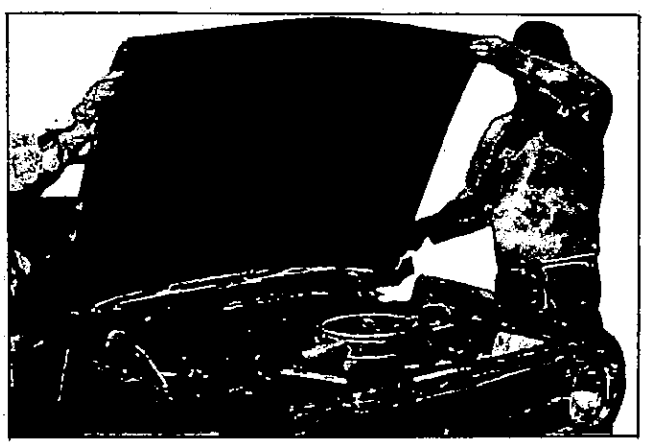

Fig. BF-17 Remvoing hood

Installation

Install the hood in reverse sequence of removal carefully so that the hood is flush with the fender top and clearance between the hood and fender is aligned evenly toward overall circumference of the hood when the hood is closed.

HOOD LOCK

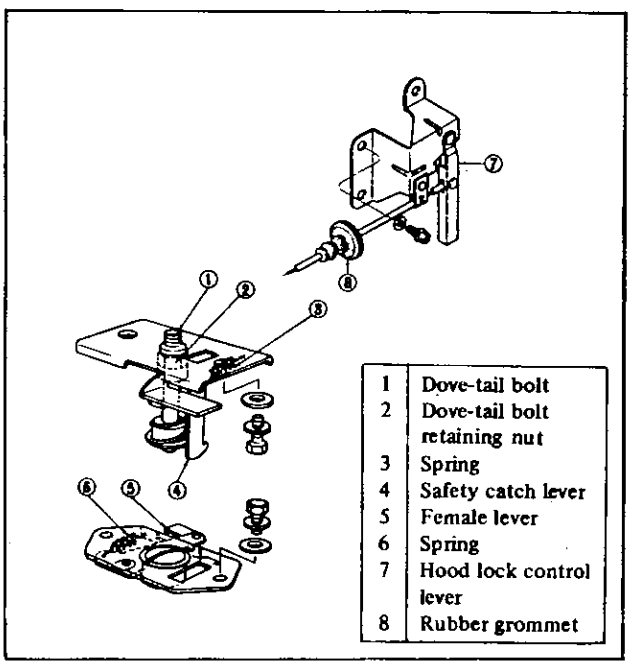

Fig. BF-18 Hood lock mechanism

Removal

1. Remove the radiator grille, loosen the installation bolts, and remove the male side of the hood lock.

2. Disconnect the hood lock wire from the female side of the hood lock, and remove the female side of the hood lock.

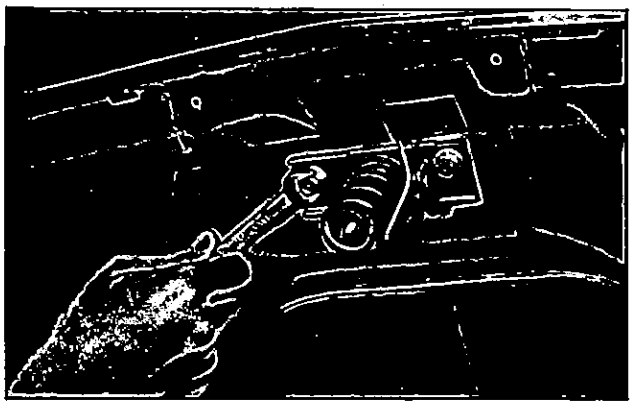

Fig. BF-19 Removing male side of the hook lock

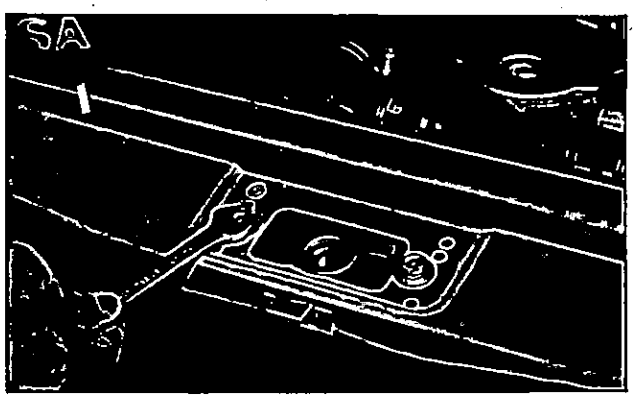

Fig. BF-20 Removing female side of the hood lock

3. Remove three screws, and remove the hood lock control lever.

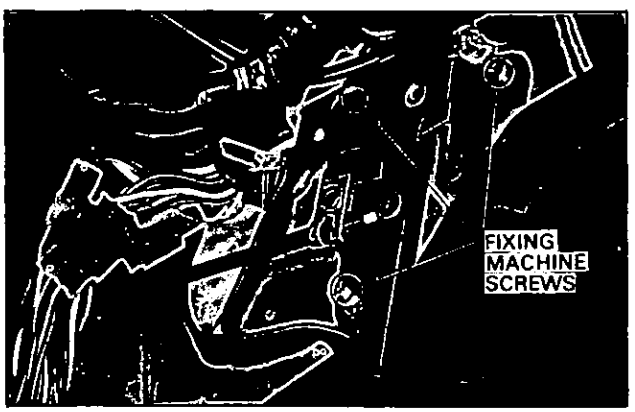

Fig. BF-21 Removing hood lock control lever

Adjustment

Centering the hood lock

The male side hook lock is provided with a 3 mm (0.118 in) adjusting stroke toward left and right sides of the vehicle, and the female side with a 3 mm (0.118 in) adjusting stroke toward front and rear sides of the vehicle. Loosen the installation bolts, and align the center correctly.

Adjusting hood lock control lever operating force

When the control lever operating force is excessive, loosen the dove-tail bolt retaining nut (②), increase dove-tail bolt (①) installed length, and reduce securing force of the spring.

Tightening torque:

Dove-tail bolt retaining nut
1.5 to 2.5 kg-m (10.8 to 18.1 ft-lb)

Adjusting hood tightness

When the hood is closed completely and the hood is slack, reduce installed length of the dove-tail bolt (①) and increase securing force of the spring.

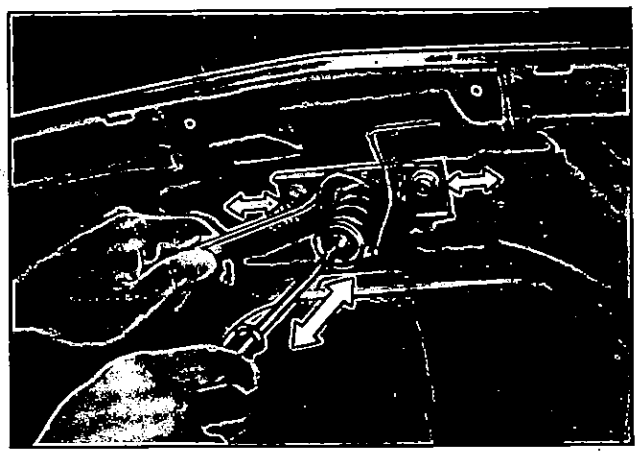

Fig. BF-22 Adjusting dove-tail bolt

Note: When inspecting the hood lock, note the following matters:

a. Operation of safety catch lever(④)
Check caulked portion of the safety catch lever for wear and the spring(③) for weakness and breakdown.
If the spring is broken, the hood may be unlocked and rapidly open during driving.

b. Operation of female lever(⑤)
Check the female lever for smooth and correction operation and the spring(⑥) for weakness and breakdown.
If the female lever does not move smoothly, engaging stroke with the dove-tail bolt will be reduced, and it may be disengaged.

FRONT FENDER AND FRONT END

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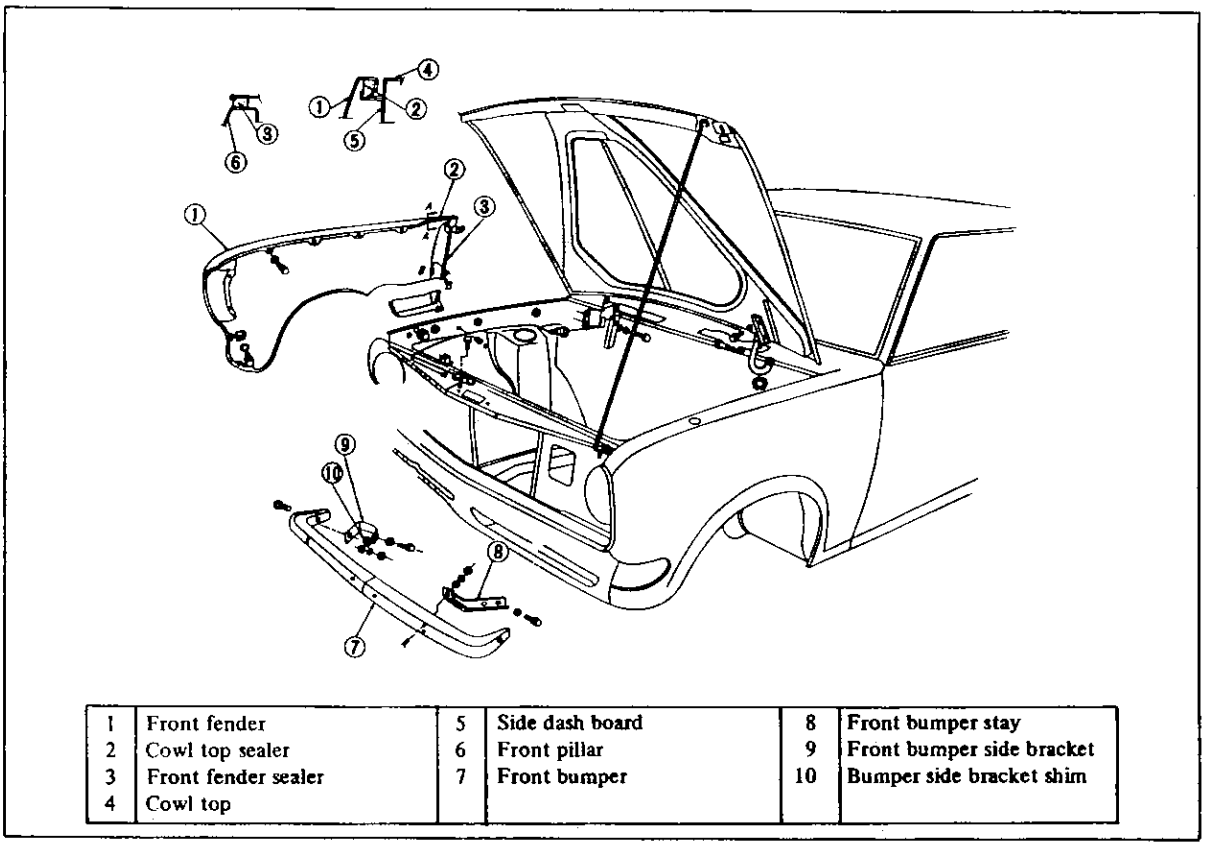
OUTSIDE MIRROR BF-17

FRONT FENDER



1	Front fender	5	Side dash board	8	Front bumper stay
2	Cowl top sealer	6	Front pillar	9	Front bumper side bracket
3	Front fender sealer	7	Front bumper	10	Bumper side bracket shim
4	Cowl top				

Fig. BF-23 Front fender and front end components

Removal

1. Open the hood, disconnect the battery terminal for the sake of safety, and disconnect wirings for the head lamp and side marker lamp at their connecting terminals.

2. Remove the front bumper, radiator grille, and radiator grille surround.

3. Remove the sill moulding, and holding the fender, remove it.

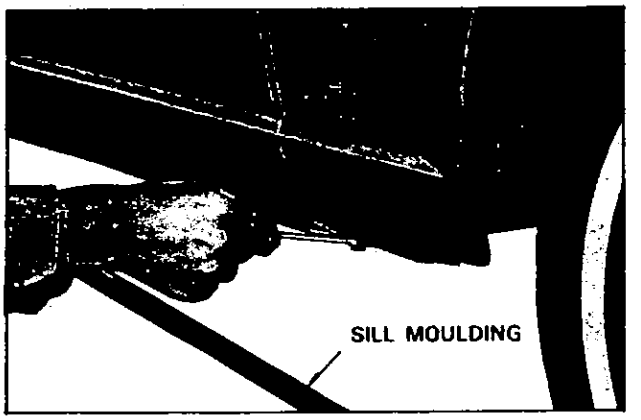


Fig. BF-24 Removing front fender (1)

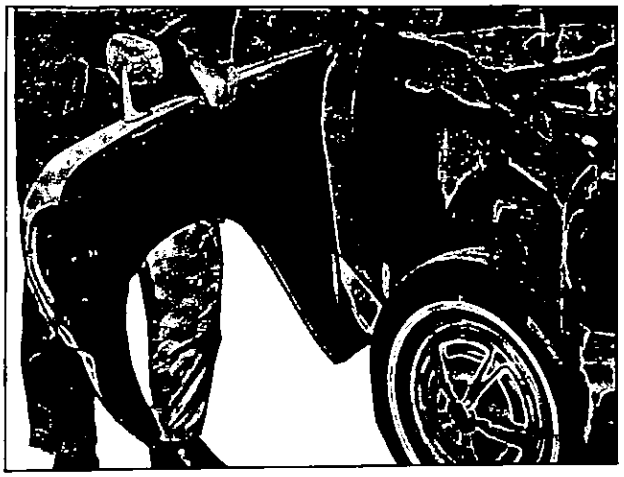


Fig. BF-25 Removing front fender (II)

FRONT BUMPER

Remove six bolts installed bumper stay to body, and remove the front bumper from the body together with the bumper stay.

RADIATOR GRILLE

Loosen self-tapping screws (five self-tapping screws for sedan, station wagon and van, and ten for coupe), and remove the radiator grille from the body.

The radiator grille for coupe is made of ABS resin. Be careful not to allow brake fluid or oil sticking to it.

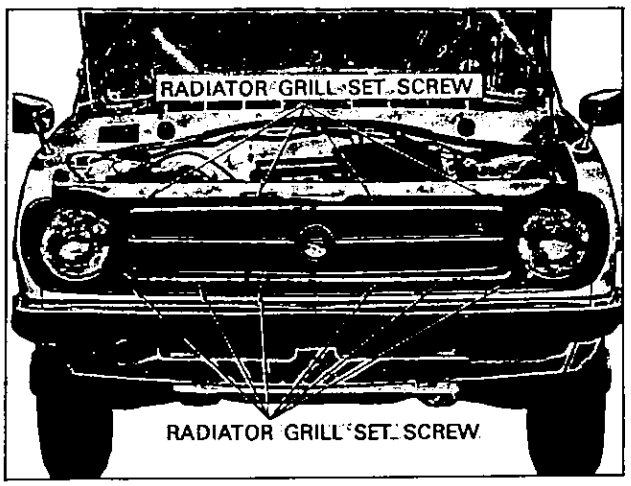
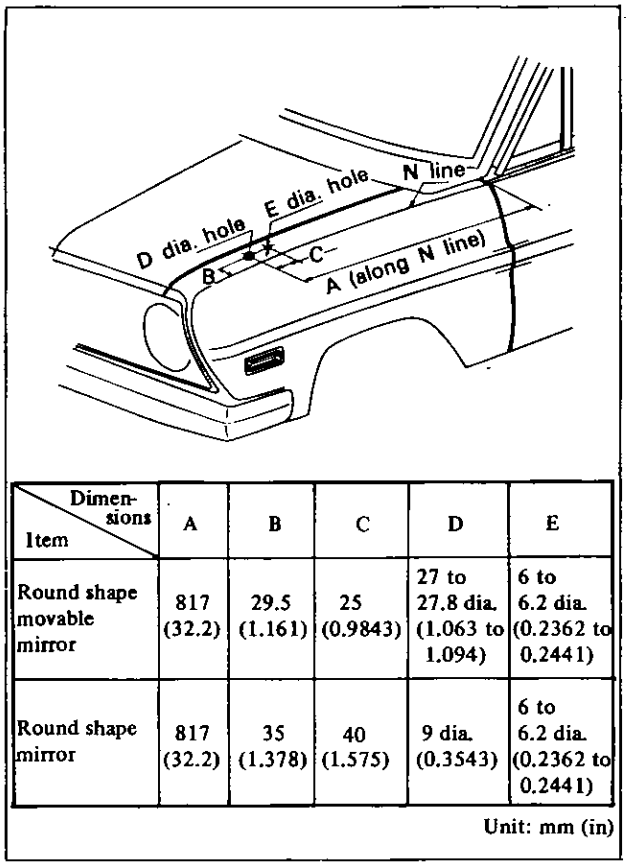


Fig. BF-26 Removing radiator grille (coupe)

OUTSIDE MIRROR

Indicates outside mirror installing positions.



Item \ Dimensions	A	B	C	D	E
Round shape movable mirror	817 (32.2)	29.5 (1.161)	25 (0.9843)	27 to 27.8 dia. (1.063 to 1.094)	6 to 6.2 dia. (0.2362 to 0.2441)
Round shape mirror	817 (32.2)	35 (1.378)	40 (1.575)	9 dia. (0.3543)	6 to 6.2 dia. (0.2362 to 0.2441)

Unit: mm (in)

Fig. BF-27 Fender mirror installing positions

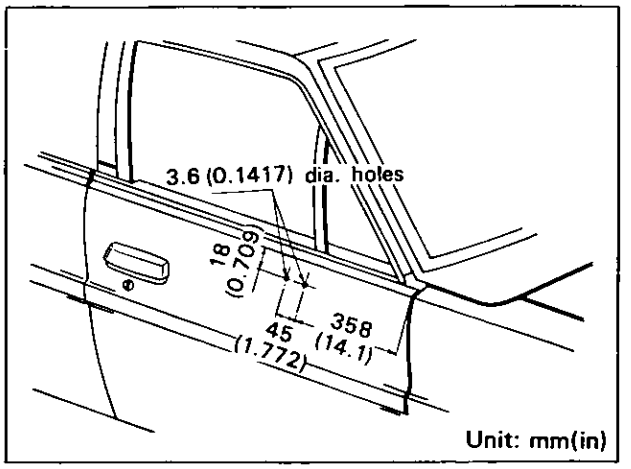


Fig. BF-28 Door mirror installing position for right hand driven vehicle

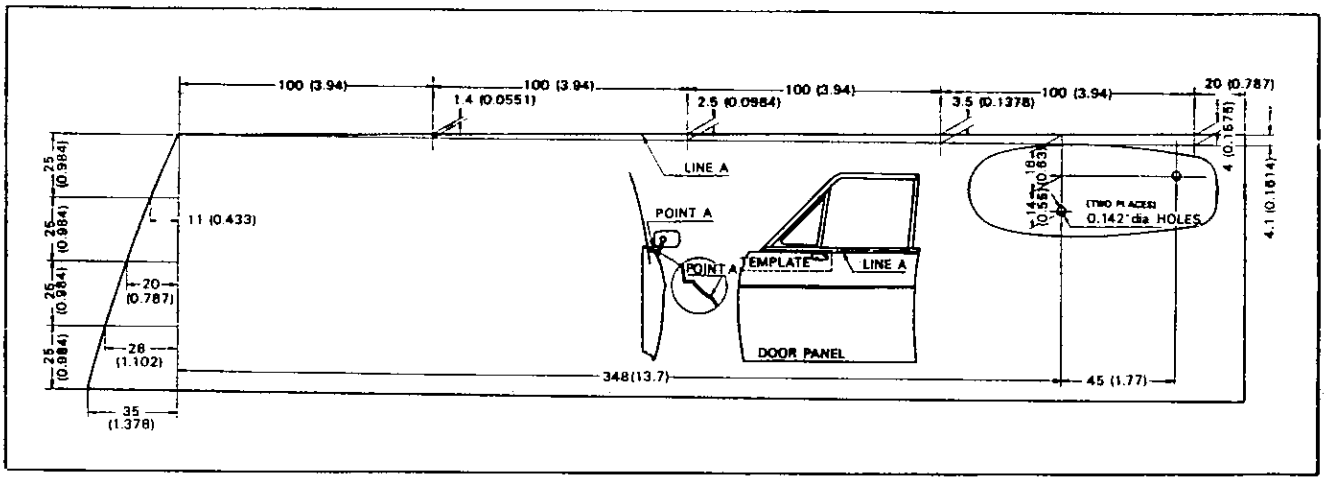


Fig. BF-29 Template for door mirror installation for left hand driven vehicle

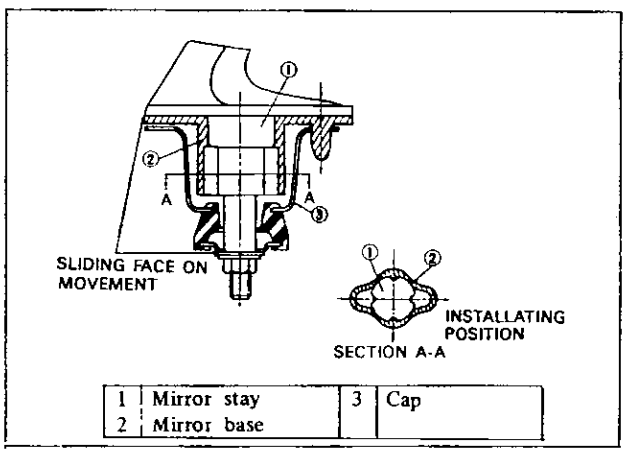


Fig. BF-30 Round shape movable outside fender mirror installing unit

When installing round shape movable outside fender mirror, tighten the nut to tightening torque range from 0.4 to 0.5 kg-m (2.9 to 3.6 ft-lb) so that fender mirror movement starting torque is in range from 20 to 75 kg-cm (17.4 to 65.1 in-lb). When the nut is tightened to tightening torque of 1.5 kg-m (10.8 ft-lb) higher, the fender mirror stud bolt may be broken.

TRUNK LID AND REAR BUMPER

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SEDAN AND COUPE

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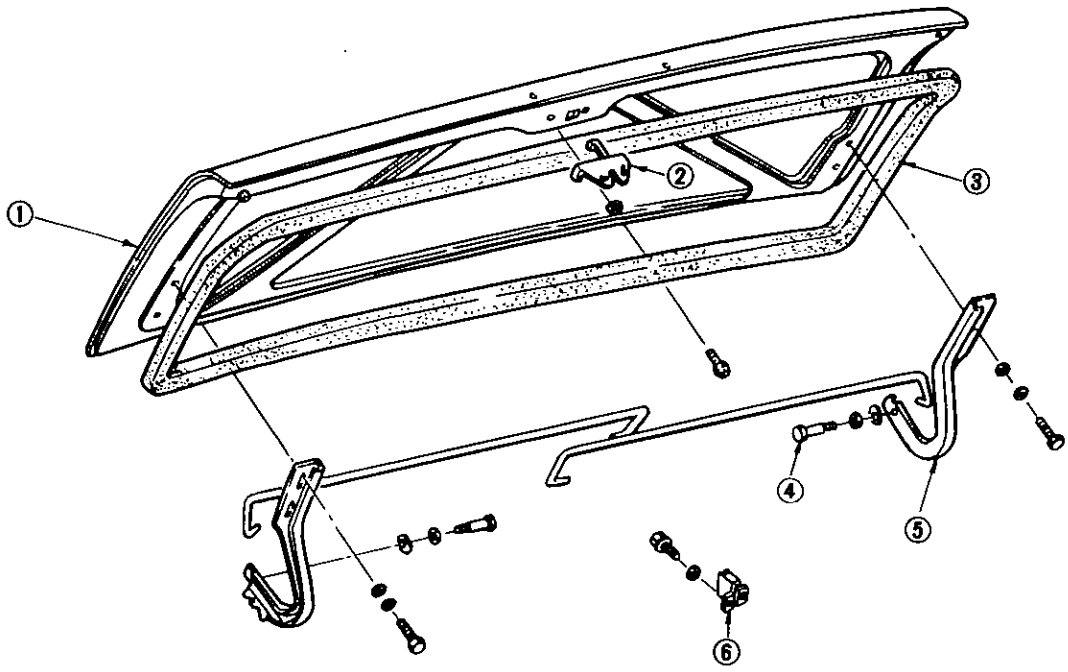
Removal BF-20
Adjustment BF-21
BACK DOOR TORSION BAR BF-23
Installation BF-23
REAR BUMPER BF-23
Removal BF-23

⟨SEDAN AND COUPE⟩



1	Trunk lid	3	Trunk lid weatherstrip	5	Trunk lid hinge
2	Trunk lid lock assembly	4	Hinge fixing pin	6	Striker assembly

Fig. BF-31 Trunk lid and hinge construction (sedan)

TRUNK LID LOCK

Removal

1. Loosen installation bolts, and remove the striker and lock from the body.

2. Remove the leaf clip (used to secure the trunk lid lock cylinder on the body), and remove the trunk lid lock cylinder.

Adjustment

Sedan

When adjusting engagement between the lock and striker, set the lock stationarily, and properly adjust striker position. Adjusting stroke toward left and right sides direction is 4.8 mm (0.1890 in), and 8 mm (0.3150 in) toward vertical direction.

Coupe

When adjusting engagement between the lock and striker, adjust striker position toward left and right sides [adjusting stroke: 6 mm (0.2362 in)], and lock position for vertical direction [adjusting stroke: 8 mm (0.3150 in)].

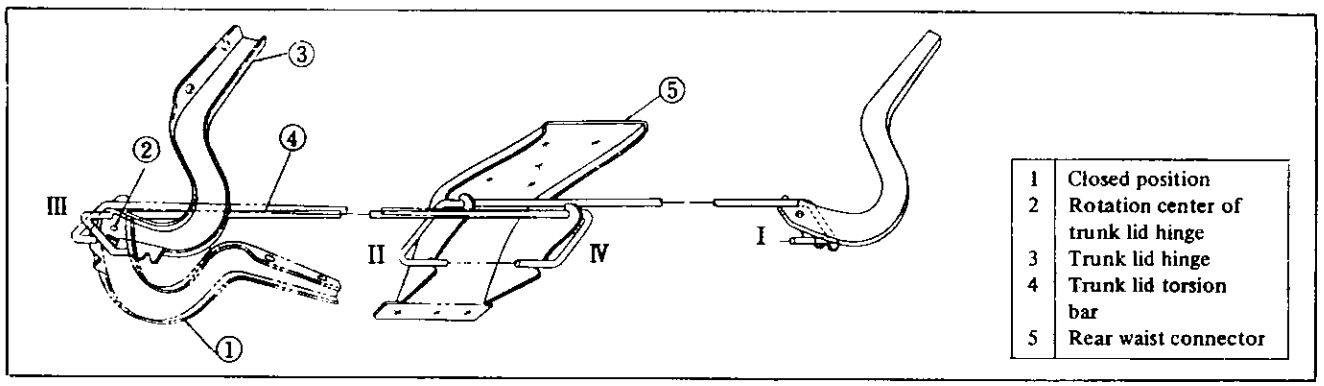
Tightening torque:

Lock and striker fixing bolt:

0.12 to 0.2 kg-m (0.87 to 1.45 ft-lb)

TRUNK LID TORSION BAR

The procedures of installing torsion bar are indicated as follows:

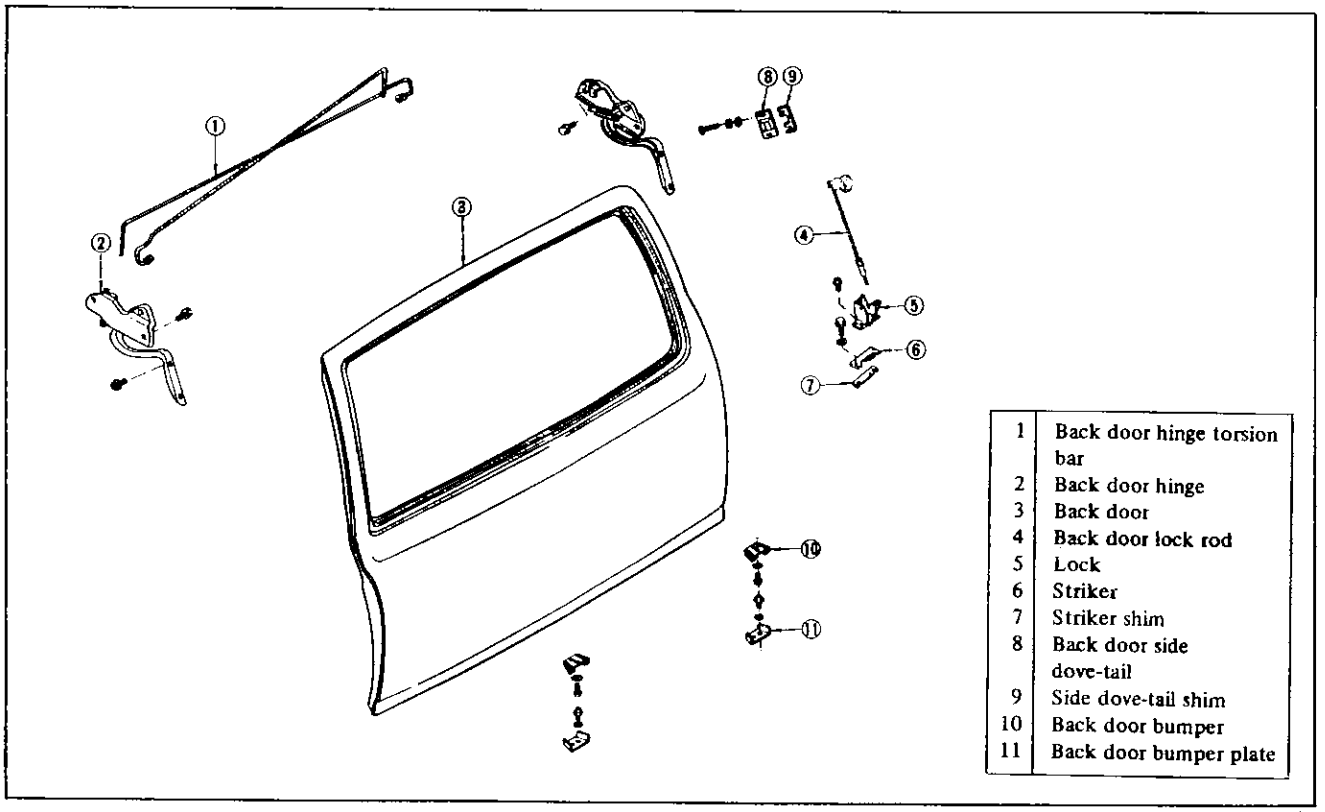


1	Closed position
2	Rotation center of trunk lid hinge
3	Trunk lid hinge
4	Trunk lid torsion bar
5	Rear waist connector

Fig. BF-32 Installing torsion bar

Note: When installing the torsion bar, use a torsion bar wrench (special tool ST08710000).

⟨STATION WAGON OR VAN⟩



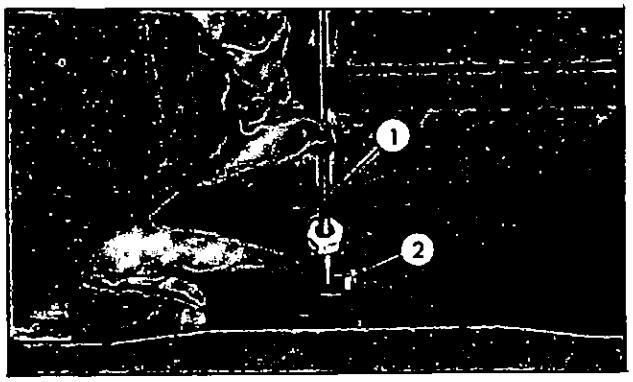
1	Back door hinge torsion bar
2	Back door hinge
3	Back door
4	Back door lock rod
5	Lock
6	Striker
7	Striker shim
8	Back door side dove-tail
9	Side dove-tail shim
10	Back door bumper
11	Back door bumper plate

Fig. BF-32 Back door and hinge constructions

BACK DOOR LOCK

Removal

1. Remove the back door trim and sealing screen.
2. Remove the lock cylinder securing leaf clip so as to free the lock cylinder, and remove the back door lock rod from the lock cylinder.



1	Back door lock rod	2	Lock cylinder

Fig. BF-34 Remvoing back door lock rod

3. Remove the lock cylinder.

4. Loosen the installation bolts (body side), and remove the lock and striker.

Adjustment

1. Striker and lock

The striker and lock engagement is adjusted at the striker side for toward horizontal and vertical directions. (The lock side is set stationarily.)

When adjusting engagement toward vertical direction, striker shim [1.6 mm (0.0630 in) thick] is used. Under the standard condition, one striker shim is used. Adjusting stroke toward the horizontal direction is 6 mm (0.2362 in).

Tightening torque:

Lock fixing machine screw:
0.12 to 0.2 kg-m (0.87 to 1.45 ft-lb)

Striker fixing bolt:
1.0 to 1.5 kg-m (7.2 to 10.8 ft-lb)

2. Side striker and wedge

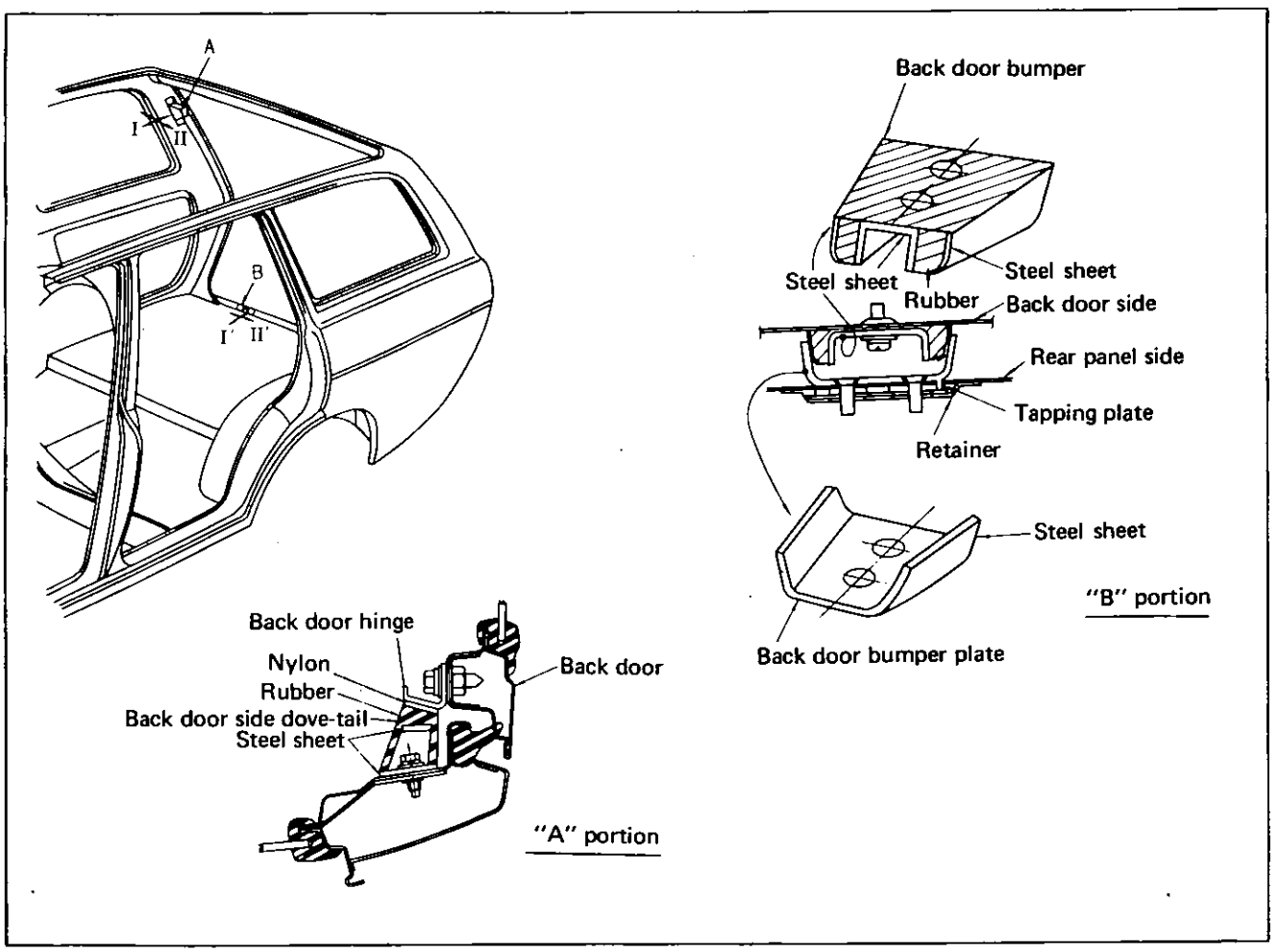


Fig. BF-35 Back door securing system

In order to secure the back door in the position, adjust the position in accordance with the following instructions:

(1) Install two back door bumpers (⑩) on the bottom of the back door. Positions of the back door bumpers are used for standard positions when positioning the back door, and, therefore, no adjusting stroke is provided.

Tightening torque:

Back door bumper fixing machine screw:
1 kg-m (7.2 ft-lb)

(2) Place the back door bumper plates as shown in Fugure BF-36 so that inside of the back door bumper comes into contact with inside of the bumper plate, and secure the bumper plates in the correctly adjusted positions. The adjusting stroke is 4 mm (0.1575 in).

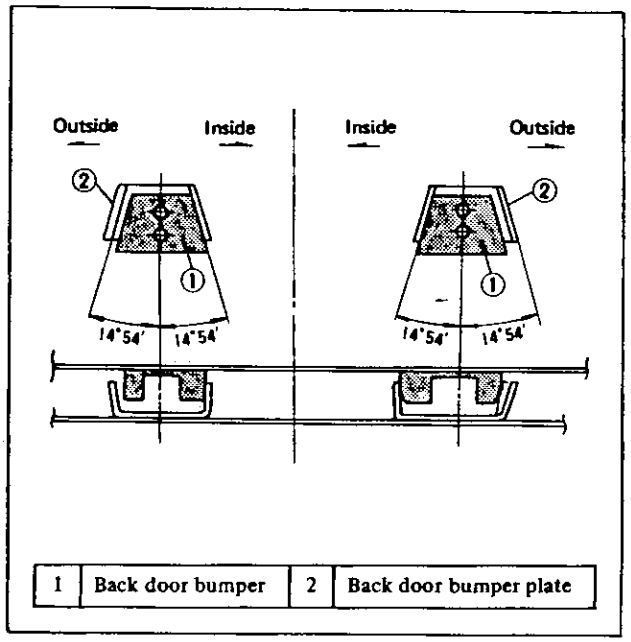


Fig. BF-36 Adjusting back door bumper plate positions

When adjusting back door bumper plate positions, use plasticine or similar material, fill the bumper plates with plasticine, close the back door, observe contact, and adjust properly so that both side bumpers come into contact with both side bumper plates evenly.

It should be noted, however, that when the bumper plates are moved excessively to the outside, back door opening/closing force increases although the back door is secured tightly. Position the bumper plates properly so that the back door can be opened and closed lightly.

Note: It has been so designed that the back door bumpers come into contact with the bumper plates at their inside. However, when inside contact surface is worn, contact may be made at the outside. Same back door securing effect will be obtained.

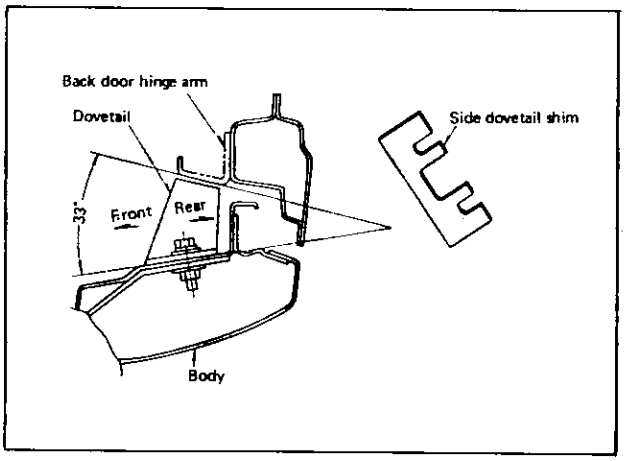


Fig. BF-37 Adjusting back door side dove-tail

(3) Now adjust both side upper portions of the back door.

Secure back door side dove-tails temporarily toward the rear direction (in the center for vertical direction), close the back door, and adjust positions of the back door side dove-tails properly so that the dove-tail comes into contact with the back door hinge arm tightly and the dove-tail is bent 1 to 2 mm (0.0394 to 0.0787 in).

When there is a gap between the dove-tail and back door hinge arm, apply dove-tail side shim(s) [1.6 mm (0.0630 in) thick)] beneath the dove-tail. When the dove-tail is moved rearward, it approaches toward the hinge arm (gap is reduced), and when moved forward, it is separated from the hinge arm (gap increases). [Vertical adjusting stroke is 2 mm (0.0787 in), and forward/rearward adjusting stroke is 6 mm (0.2362 in).]

Tightening torque:

Dove-tail fixing machine screw: 1 kg-m
(7.2 ft-lb)

BACK DOOR TORSION BAR

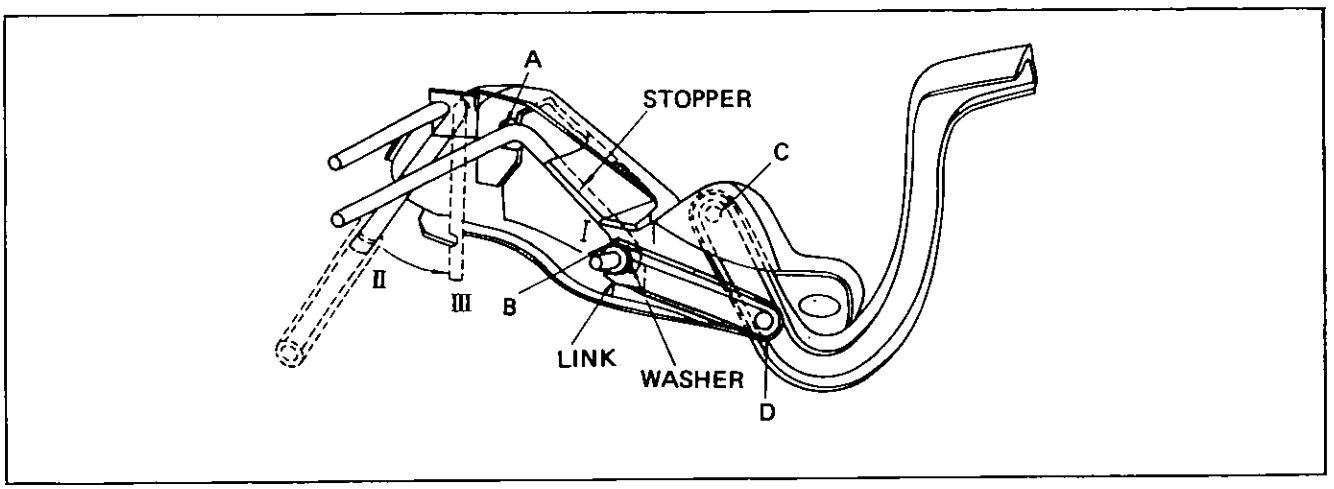


Fig. BF-38 Installing back door torsion bar

Installation

1. Fully open the back door, and set the hinge link and torsion bar to condition "I" of Figure BF-38.

2. Apply a torsion bar wrench (special tool ST08710000) to one end of the torsion bar, and hook it from position "II" to "III" of the Figure BF-38. The torsion bar may be set either from left or right.

REAR BUMPER

Removal

Disconnect wiring for the license plate lamp, loosen the bumper installation bolts from the luggage compartment, and remove the bumper.

DOORS

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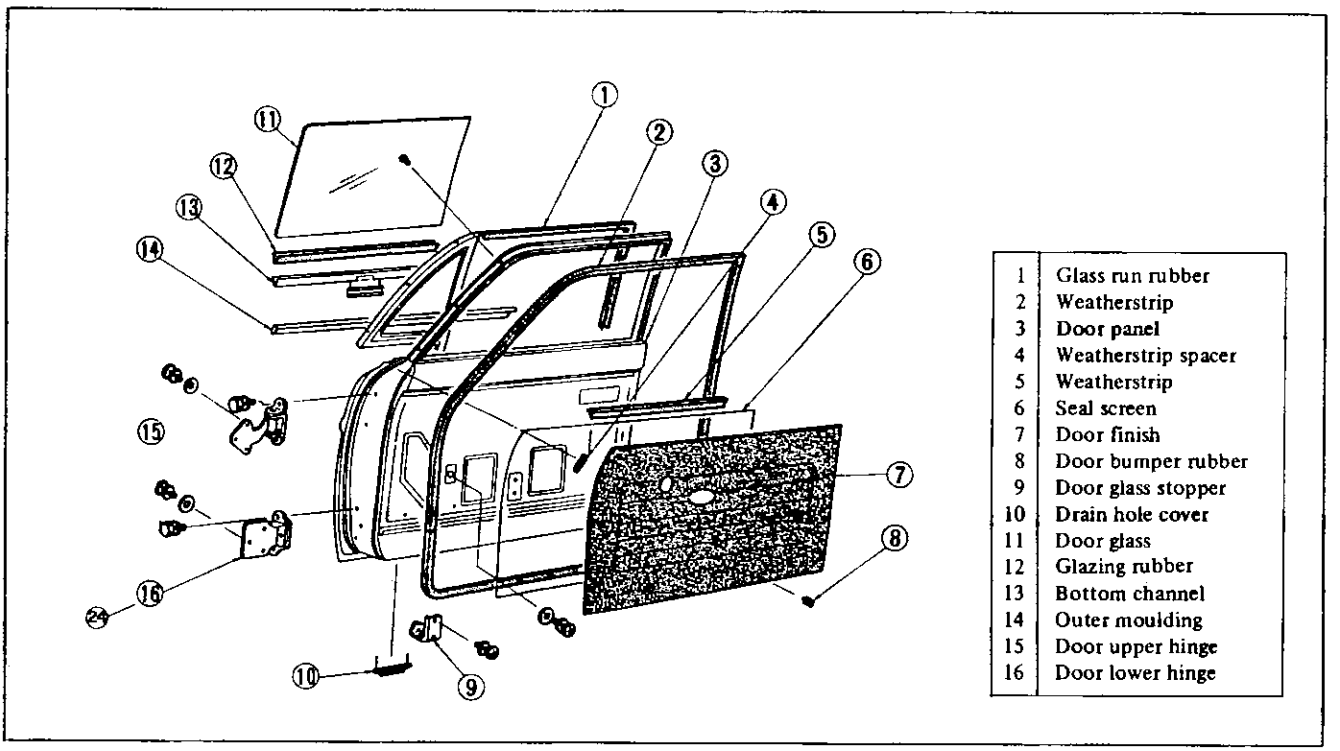
DESCRIPTION

The cross-sectional door sash provides with high rigidity, and the door sash is secured on the door panel by means of welding.

The door lock is of a knob-lock type, and the inside handle is of a pull-rise type.

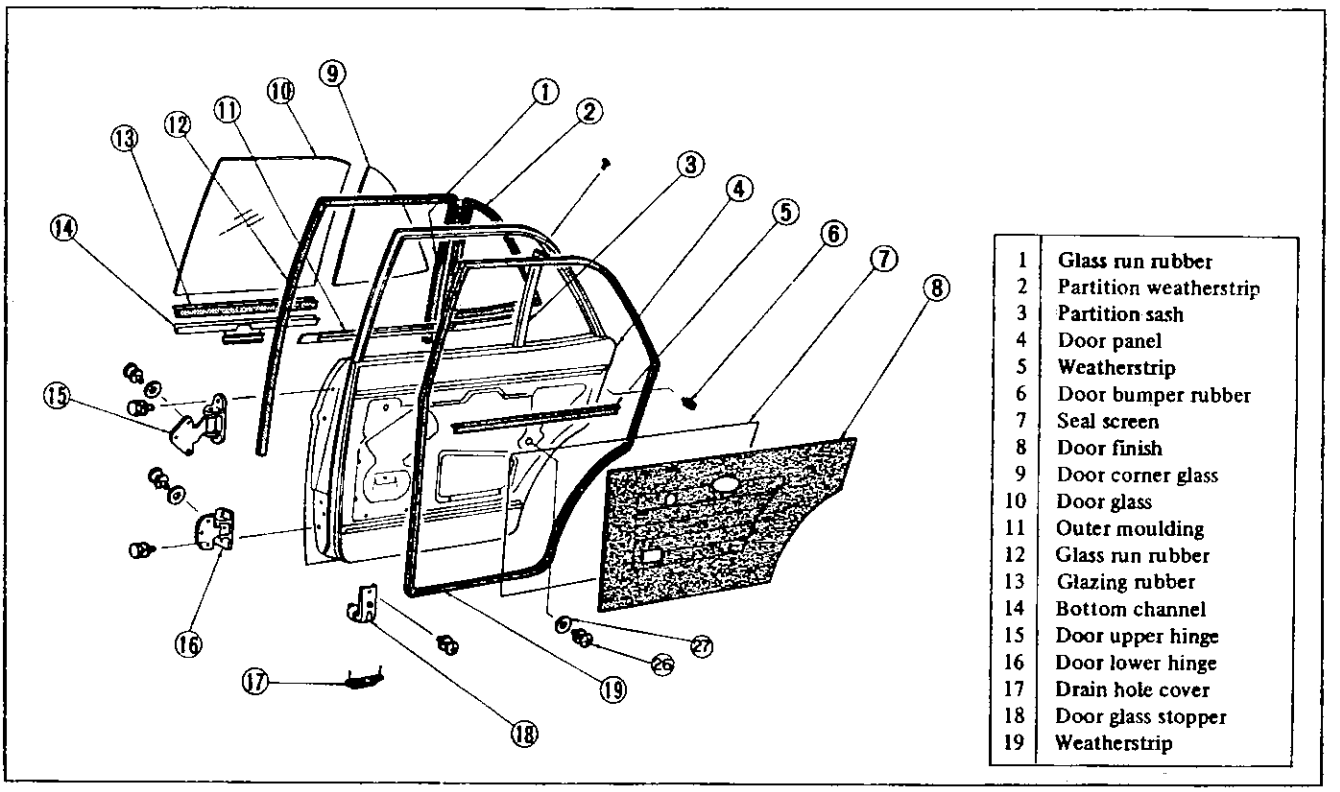
The inside handle bracket is provided with a weak point so that a load is absorbed when a large load is applied to the inside handle during an accident. The outside handle is of a pull-up type.

DOOR CONSTRUCTION



1	Glass run rubber
2	Weatherstrip
3	Door panel
4	Weatherstrip spacer
5	Weatherstrip
6	Seal screen
7	Door finish
8	Door bumper rubber
9	Door glass stopper
10	Drain hole cover
11	Door glass
12	Glazing rubber
13	Bottom channel
14	Outer moulding
15	Door upper hinge
16	Door lower hinge

Fig. BF-39 Front door construction



1	Glass run rubber
2	Partition weatherstrip
3	Partition sash
4	Door panel
5	Weatherstrip
6	Door bumper rubber
7	Seal screen
8	Door finish
9	Door corner glass
10	Door glass
11	Outer moulding
12	Glass run rubber
13	Glazing rubber
14	Bottom channel
15	Door upper hinge
16	Door lower hinge
17	Drain hole cover
18	Door glass stopper
19	Weatherstrip

Fig. BF-40 Rear door construction

Removal

It is recommended that the door be removed from the body with the door hinges attached on the door although the door may be removed from the body with or without the hinges attached on the door.

Front door

1. Remove the package tray.

2. Remove the door hinge service hole cover from the dash side trim.

3. With the door fully opened, support the door by applying a stand or jack beneath the door so that the door does not drop off.

Note: Apply a piece of rag between the door and stand so that the door panel is protected from damaging.

4. Remove the door hinge installation bolts at the body side by the use of a box wrench and remove the door from the body.

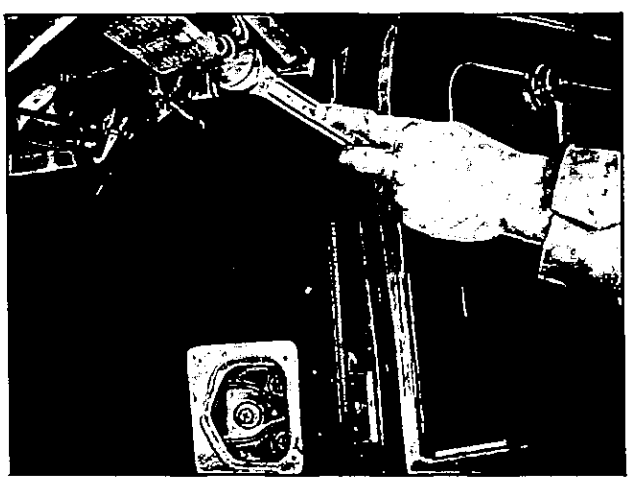


Fig. BF-41 Removing front door (Dash side trim without door hinge service hole)

Rear door

1. Remove the kicking plate.

2. Peel off the body side welt, and remove the center pillar finish.

3. Hereinafter, follow the instructions for the front door, and remove the rear door.

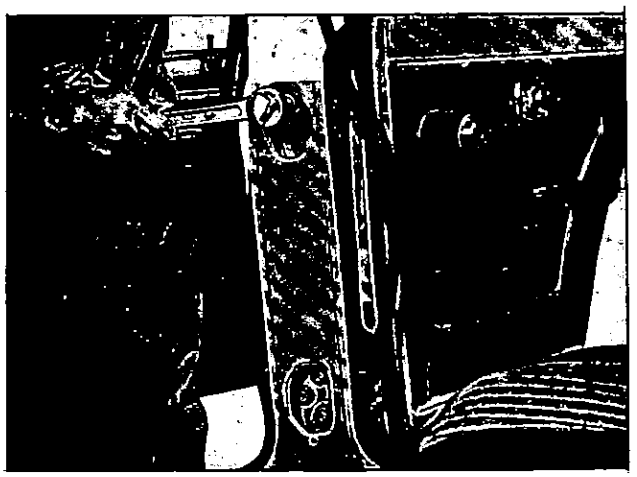


Fig. BF-42 Removing rear door

Adjustment

Door hinge

Loosen the bolts used to secure the hinge to the body, adjust the door upward, downward, forward, or rearward position as required, and retighten the bolts securely.

Adjustable range: 6 mm (0.2362 in)

Tightening torque:

Hinge/pillar installation bolt: 1.6 kg-m (11.6 ft-lb)

Hinge/door installation bolt: 1.6 kg-m (11.6 ft-lb)

Note: a. When installing the hinge, grease the hinge link.
b. Oil top of the hinge pin when the door squeaks while opening or closing.

Striker

Another method to adjust the door, loosen the striker fixing screw and adjust the striker position.

Adjustable range: 6 mm (0.2362 in)

Tightening torque:

Striker installation machine screw:
0.12 to 0.2 kg-m (0.7 to 1.4 ft-lb)

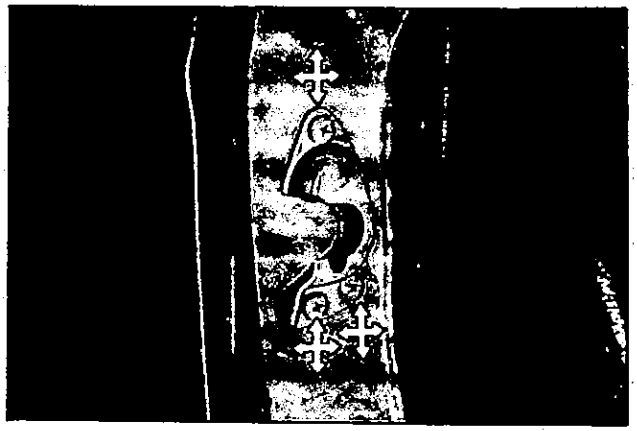
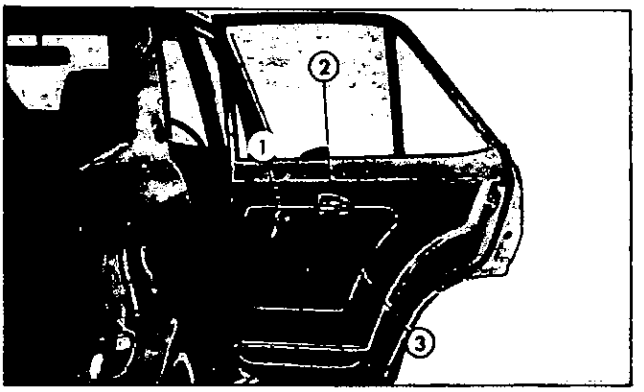


Fig. BF-43 Adjusting striker



1	Regulator handle	3	Arm rest
2	Inside handle escutcheon		

Fig. BF-44 Door trim

DOOR TRIM

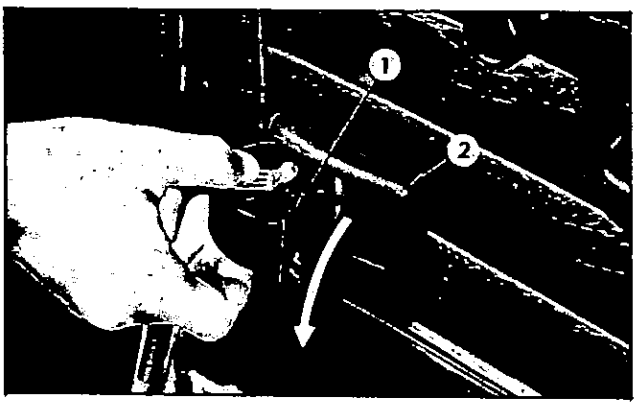
For both the front and rear doors, the door trims may be removed and reinstalled in the same method.

Removal

1. When removing the door regulator handle, lock inside handle escutcheon and arm rest, remove their installation screws.

2. When removing the ash tray outer case, remove the ash tray, and remove the installation screws.

3. The door finish is secured on the door with clips. When removing the door finish, pull it toward you.



1	Ash tray	2	Outer case

Fig. BF-45 Removing ash tray

DOOR LOCK MECHANISM

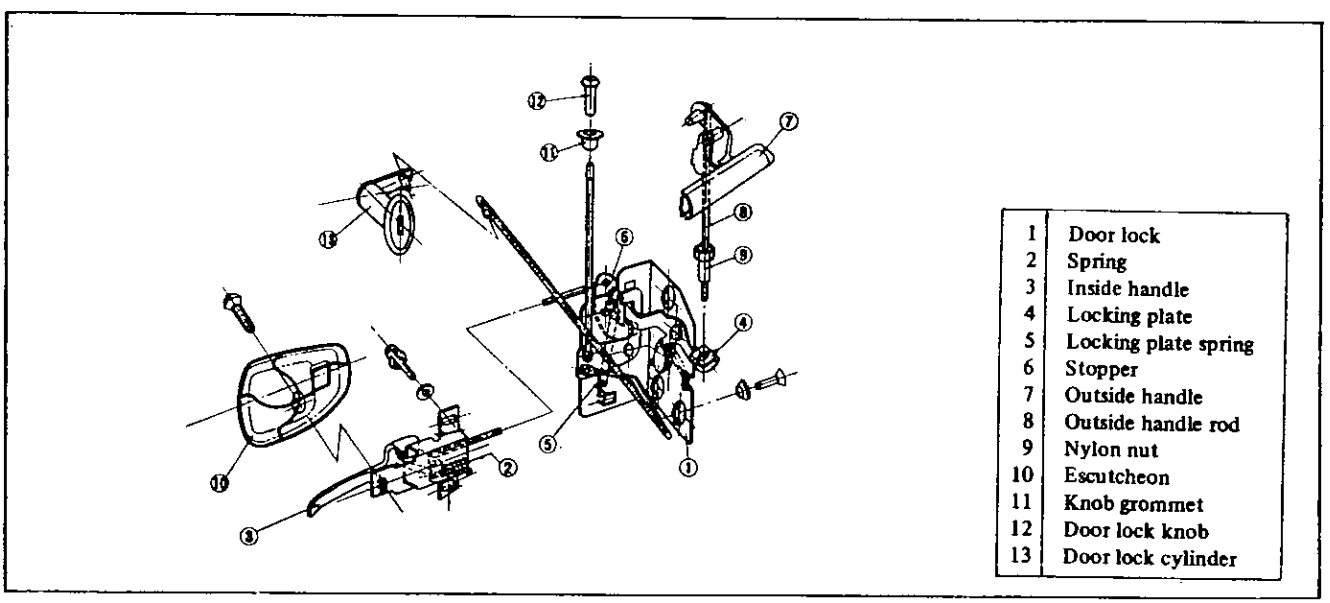


Fig. BF-46 Front door lock mechanism

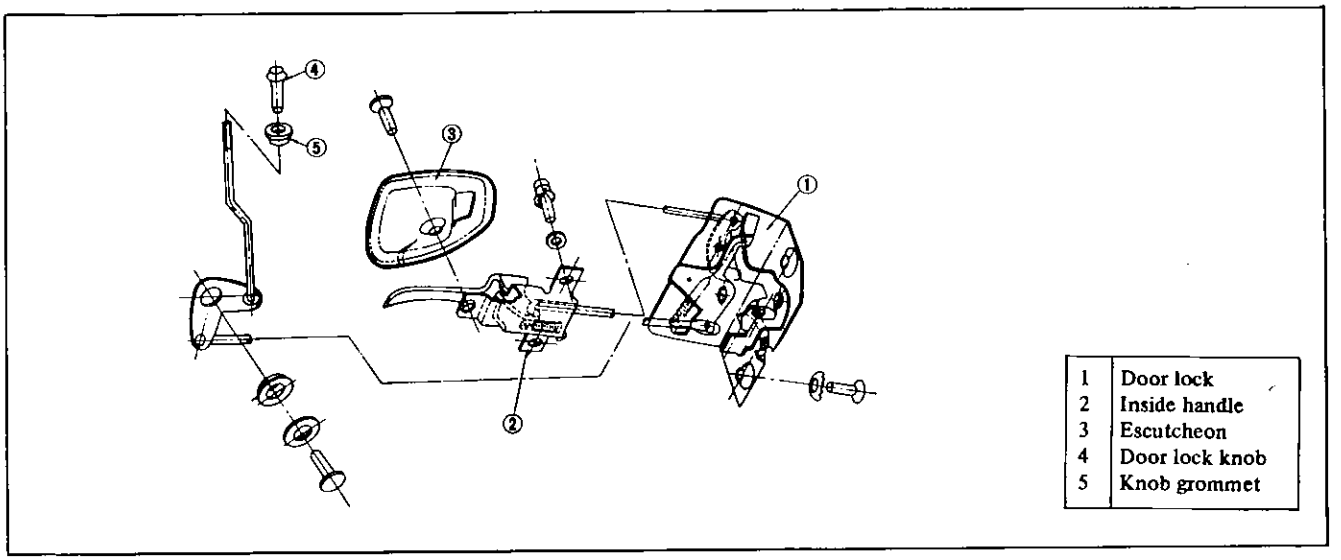


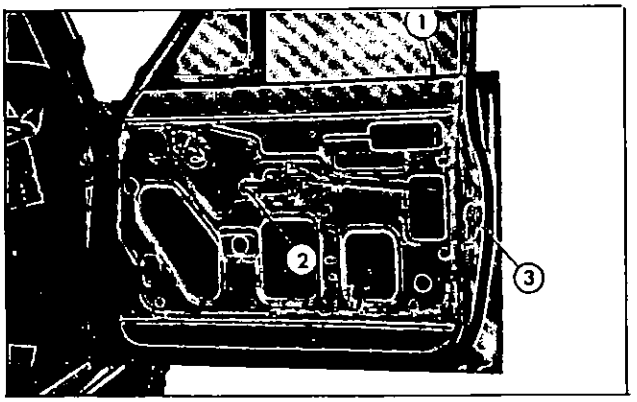
Fig. BF-47 Rear door lock mechanism

Front door lock removal

1. Remove the parts up to the seal screen.

2. Remove the door lock knob, and then remove the remote control rod used to connect the door lock to the door lock cylinder from the door lock cylinder.

3. Remove the inside handle installation screw and the door lock assembly installation screws, and withdrawing the outside handle rod from the opening on the lock assembly, remove the lock assembly from the service hole on the inside panel.



1	Lock knob	3	Lock assembly
2	Inside handle		

Fig. BF-48 Door without sealing screen

4. Detach the leaf clip (used to secure the lock cylinder on the door), and remove the lock cylinder.

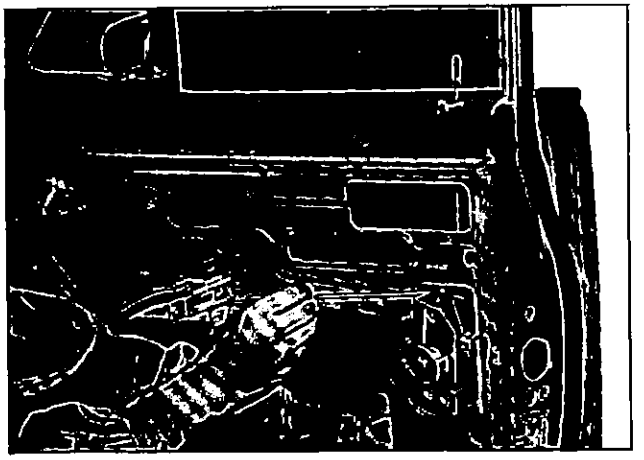


Fig. BF-49 Removing front door lock

Front door lock installation

1. Installing the inside handle and remote control

Adjust position and install the remote control so that the stopper(⑥) of the inside handle(③) lightly contacts the base plate of the door lock (①).

If the remote control is installed with the inside handle (③) pulled, the locking plate(④) does not intermesh with the ratchet completely at the full ratch, and the lock knob (⑫) does not lower.

2. Connecting outside handle to the locking plate

Set the locking plate(④) to the fully ratched position, insert the nylon nut(⑨) on the end of the outside handle rod (⑧) into the locking plate hole(④), and adjust and secure the nylon nut(⑨) with adhesive in a position where

the outside handle rod(⑧)is provided with 2 to 3 mm (0.0787 to 0.1181 in) play in the stroke.

If the nylon nut(⑨)is positioned too low, the locking plate(④) is depressed at the full ratch, the locking plate does not intermesh with the ratchet completely, and the knob cannot be locked. If play in stroke of the outside handle rod(⑧)is excessive [may be unlocked up to 5 mm (0.1967 in)], stroke of the outside handle will be insufficient.

If the nylon nut is loosened, the above described trouble occurs. Be sure to secure the nut completely by means of adhesive. Check the springs(②)and(⑤)for rust, and replace as required.

Tightening torque:

Door lock installation screw:
0.12 to 0.2 kg-m (0.9 to 1.4 ft-lb)

Door lock remote control installation screw:
0.12 to 0.2 kg-m (0.9 to 1.4 ft-lb)

Outside handle installation nut:
0.2 to 0.3 kg-m (1.4 to 2.2 ft-lb)

Rear door lock removal

1. Remove the parts up to the seal screen.
2. Raise the door glass to the top and remove the door lock knob.
3. Remove the bell crank installation screw.

Hereinafter, the instructions for removal of the front door lock apply.

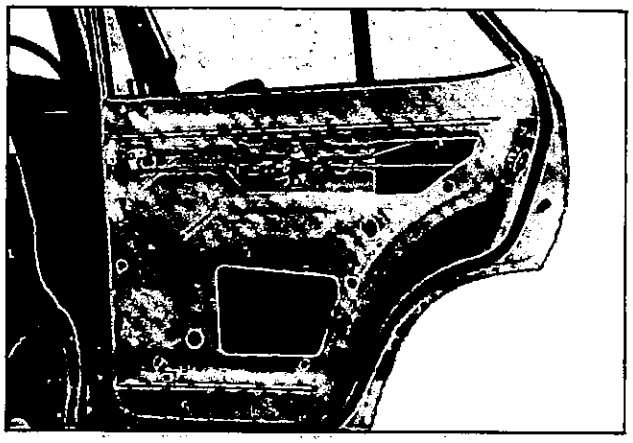


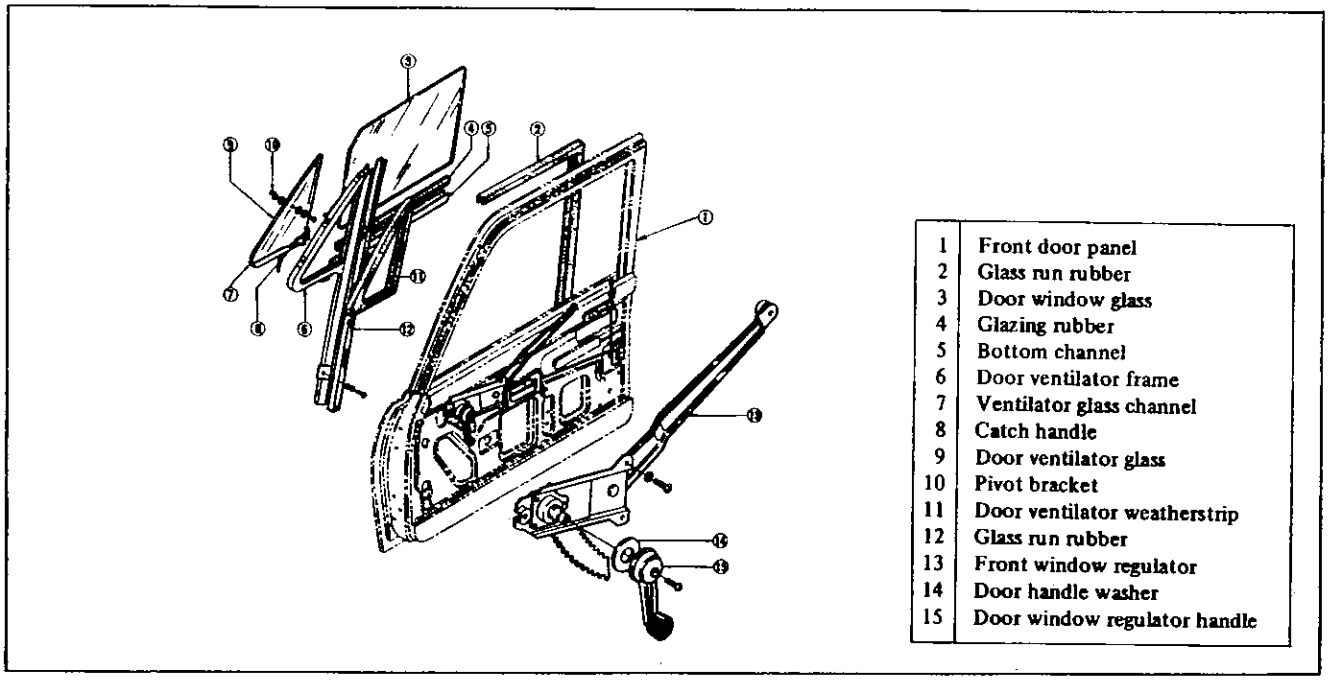
Fig. BF-50 Door without sealing screen

Rear door lock installation

Install the rear door lock in reverse sequence of removal.

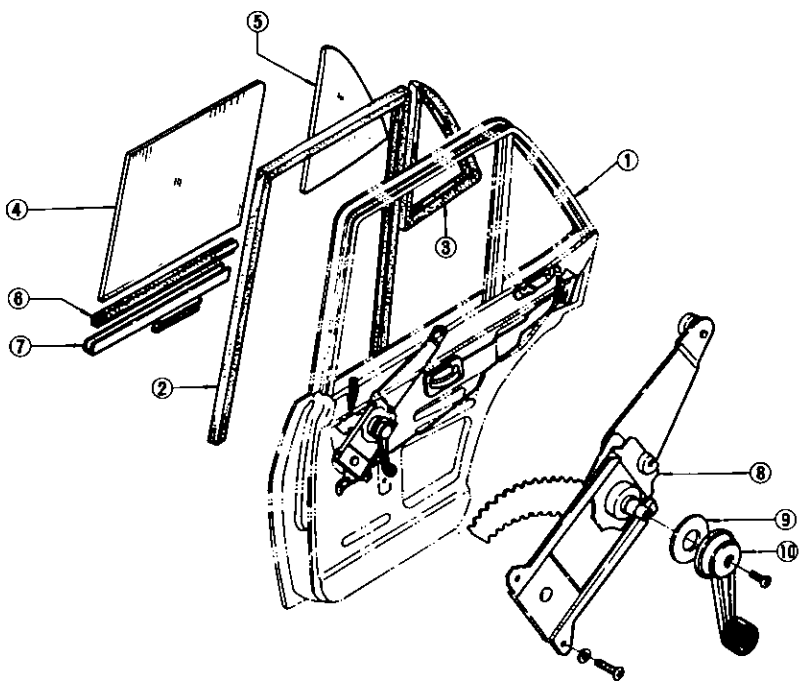
Note: Except for the precautions for outside handle, the precautions for the front door lock apply.

DOOR GLASS AND REGULATOR



1	Front door panel
2	Glass run rubber
3	Door window glass
4	Glazing rubber
5	Bottom channel
6	Door ventilator frame
7	Ventilator glass channel
8	Catch handle
9	Door ventilator glass
10	Pivot bracket
11	Door ventilator weatherstrip
12	Glass run rubber
13	Front window regulator
14	Door handle washer
15	Door window regulator handle

Fig. BF-51 Front door glass and regulator construction (4-door sedan)



1	Rear door panel
2	Glass run rubber
3	Partition rear door weatherstrip
4	Rear door glass
5	Rear door corner glass
6	Glazing rubber
7	Bottom channel
8	Door window regulator
9	Door handle washer
10	Door window regulator handle

Fig. BF-52 Rear door glass and regulator construction (4-door sedan)

Removal

1. Remove the door trim, and seal screen.

2. Remove the door glass stopper, and lower the door glass to the bottom.

3. Remove four door ventilator installation screws, and detach the door ventilator.

4. Pull upward, and remove the door glass.

5. Remove three regulator assembly installation screws, and remove the regulator assembly from the service hole.

Note: The door regulator may be removed without removing the door lock.

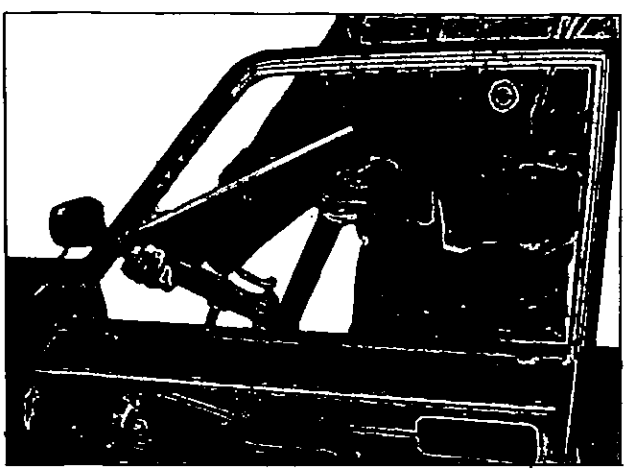


Fig. BF-53 Removing door ventilator

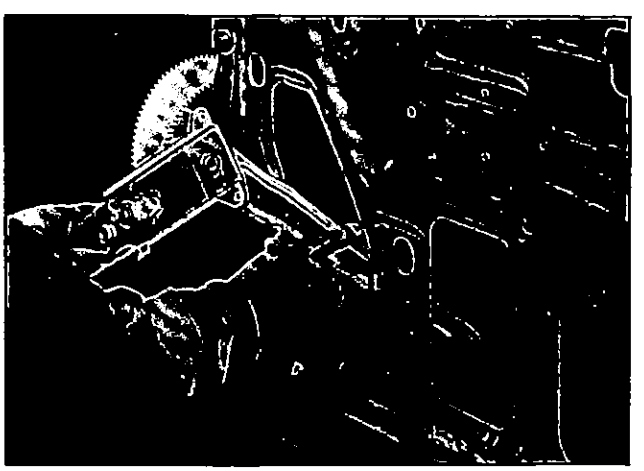


Fig. BF-54 Removing rear door window regulator

Installation

Install the door glass and regulator in reverse sequence of removal.

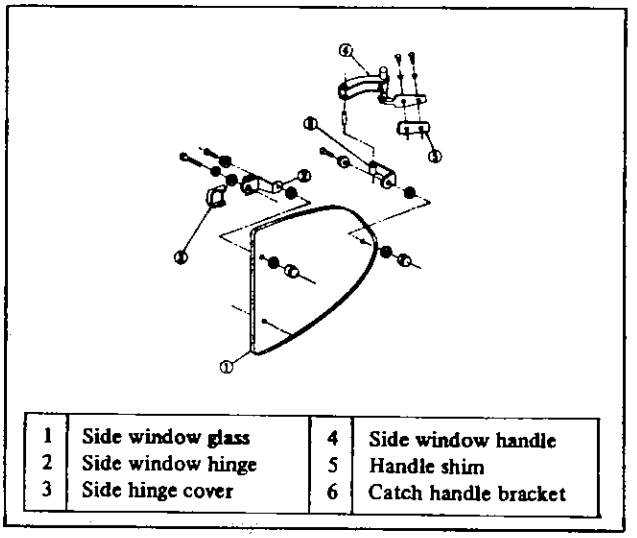
Reinstall the seal screen after correctly adjusting door window closing.

SIDE WINDOW

Removal

1. Remove the lock pillar moulding, and remove the side window handle set screws from the body side.

2. Loosen the side window hinge installation screws, and remove the side window.



1	Side window glass	4	Side window handle
2	Side window hinge	5	Handle shim
3	Side hinge cover	6	Catch handle bracket

Fig. BF-55 Side window construction

WINDSHIELD AND REAR WINDOW

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INSTALLATION BF-31
WATERLEAK CORRECTION BF-31

REMOVAL

1. Place a protective cover over the hood, front fenders, instrument panel and front seat.

2. Remove rear view mirror support.

3. Remove windshield wiper arm assembly.

4. On inside of body, loosen the lip of the rubber channel from spot welded flange along the top and sides of windshield opening. With the palm of the hand, apply pressure to glass near edge. At the same time use a blunt putty knife or other suitable tool and carefully assist rubber channel over spot welded flange.

5. After windshield rubber channel is free from spot welded flange, with aid of helper, carefully lift windshield assembly from body opening and place it on a protected bench.

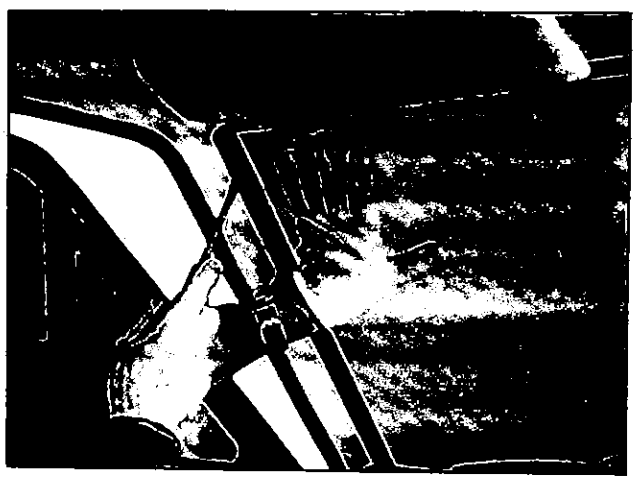


Fig. BF-56 Removing windshield

Note: The windshield chrome modlings are installed in the rubber channel and should be removed prior to removing rubber channel from the glass.

INSTALLATION

It is important that the body windshield opening be checked thoroughly before installation of the replacement windshield glass. The procedure below outlines the method which may be used to check the windshield opening.

1. Check windshield rubber channel for any irregularities.

2. Clean off old sealer around windshield opening and check entire body opening flange for any irregularities.

3. With the aid of a helper carefully position replacement glass on windshield opening.

Note: Care should be exercised to make certain glass does not strike body metal during installation. Edge chips can lead to future breaks.

4. With windshield glass supported and centered in body opening, check relationship of glass to body opening around entire perimeter of glass.

(1) The inside surface of the glass should completely contact the spot welded flange.

(2) The curvature of the glass should be uniform to that of the body opening.

5. Mark any sections of body to be reformed. Remove glass, and reform opening as required.

6. Install windshield

(1) Clean out old sealer in glass cavity of windshield rubber channel and around base of rubber channel.

(2) Install rubber channel to glass.

(3) Insert a strong cord in the groove of the rubber channel where the spot welded flange fits.

Tie ends of cord and tape to inside surface of glass at bottom center of glass.

(4) With the aid of a helper, carefully position and center windshield assembly in body opening.

Note: Do not position glass by tapping or hammering at any time.

(5) When the glass and channel are properly positioned in opening, slowly pull ends of cord, starting at lower center of windshield to seat lip of rubber channel over spot welded flange. Cord should be pulled first across bottom of windshield, then up each side and finally across windshield top.

(6) Using a pressure type applicator, seal inner and outer lips of rubber channel to glass with an approved weatherstrip adhesive as indicated in Figure BF-57. Seal completely around rubber channel.

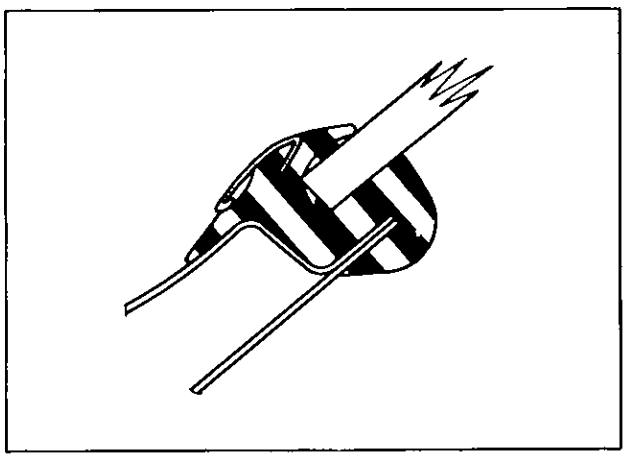


Fig. BF-57 Sectional view of rubber channel

(7) Reinstall all previously removed parts and remove protective coverings.

WATERLEAK CORRECTION

In many instances, minor waterleaks around the windshield may be corrected by performing the following operations.

1. Leak between rubber channel and glass.

Using a pressure applicator (corking gun) with a narrow tip, apply an approved weatherstrip adhesive (black) between glass and rubber channel on the outside of the glass completely around perimeter of glass.

2. Leak between rubber channel and body.

Use a pressure applicator with a narrow tip. Working from outside of body, apply a sealer under outer lip of rubber channel around entire perimeter of body opening.

VENTILATOR

CONTENTS

DESCRIPTION BF-32
COWL TOP GRILLE BF-33

DESCRIPTION

In this body ventilation system, air is taken from the air intake on the cowl top and ventilator on the front door and exhausted from the slip shape air outlets on the rear pillar (body side for coupe) and side window. Thus, the passenger compartment is ventilated sufficiently.

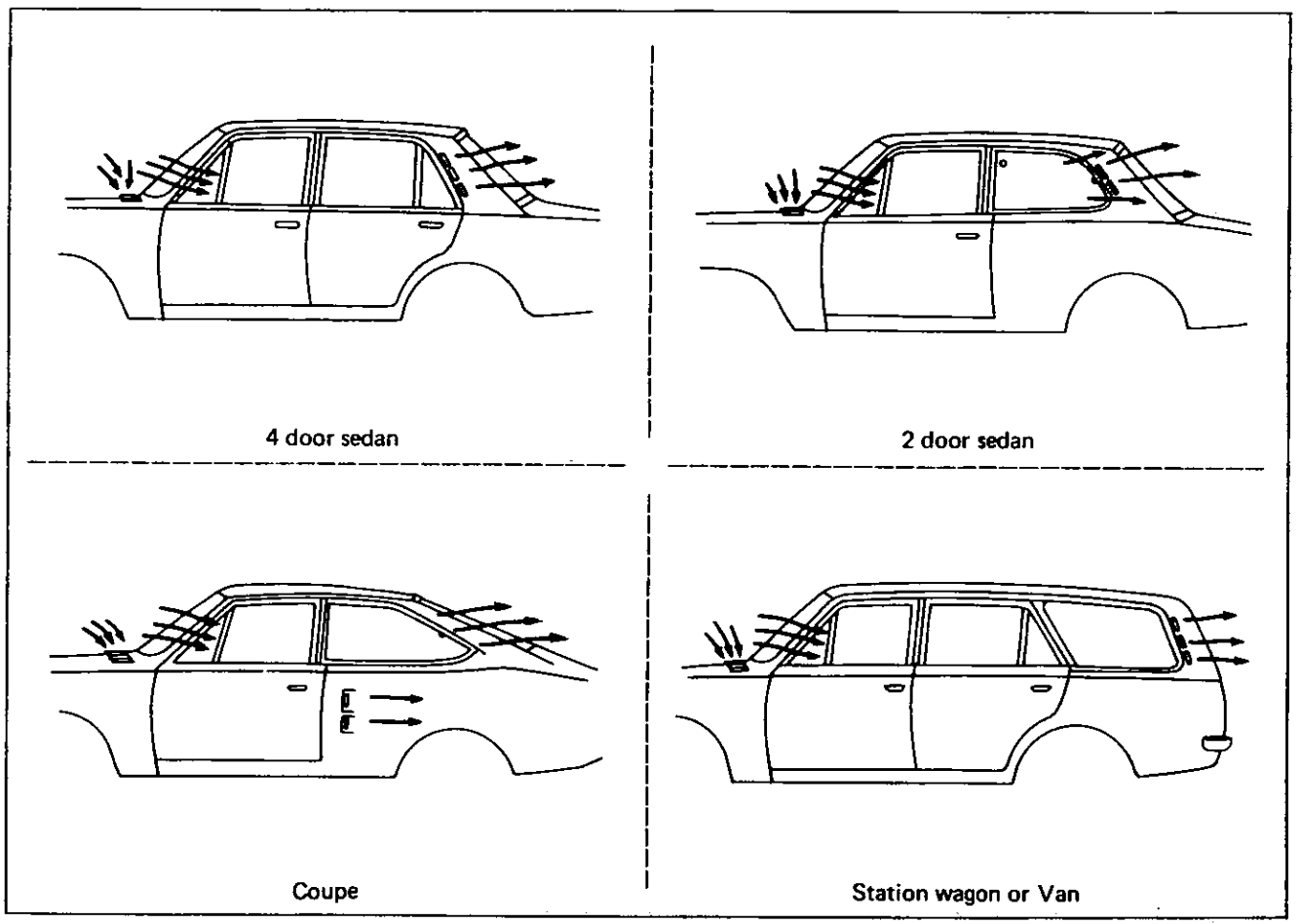
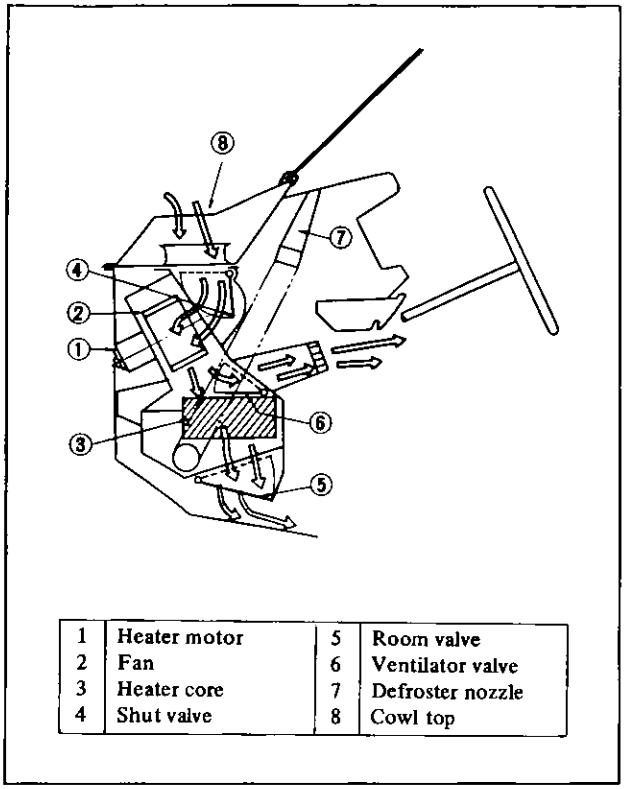


Fig. BF-58 Ventilation system



1	Heater motor	5	Room valve
2	Fan	6	Ventilator valve
3	Heater core	7	Defroster nozzle
4	Shut valve	8	Cowl top

Fig. BF-59 Cross-sectional view of forced ventilation

COWL TOP GRILLE

Loosen six self-tapping screws, and remove the cowl top grille from the cowl top panel together with the baffle plate.

The cowl top grille is made of ABS resin. When installing, tighten inside self-tapping screws (two screws) first, and tighten four outside self-tapping screws so that no unreasonable force is applied to the cowl top grille. Moreover, be careful not to allow brake fluid or oil sticking to it.

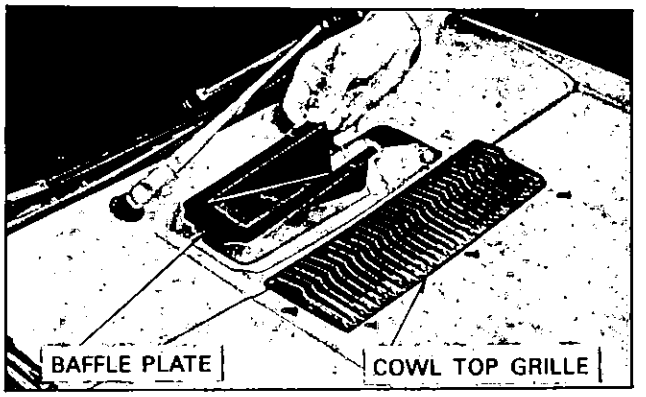


Fig. BF-60 Cowl top grille removal

SEAT

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Removal BF-34
Reinstallation BF-35
HEAD REST (OPTION) BF-35
SEAT BELT (OPTION) BF-35

SEAT

Description

For the B110 series, two types of front seat are available; one is a separate bucket seat, and the other is a separate manual reclining seat (option).

The manual reclining seat is operated by a control lever located in the window side of the seat cushion. When the control lever is pulled upward, the seat back can be reclined to any desired position up to approximately 52° from the normal position.

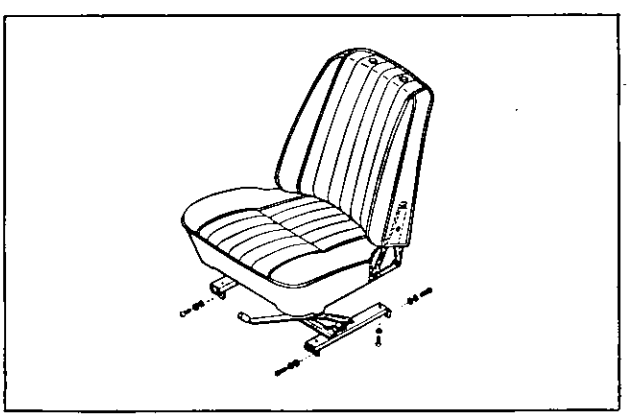

Fig. BF-61 Front seat

Removal

Slide rail of front seat

1. Slide the lower rail toward rear side of the seat, and remove the seat frame connecting bolts.
2. Remove return spring.
3. Slide the lower rail forward, and remove the fixing bolts from the rear side.

Rear seat (sedan)

1. Remove two screws from both sides of the seat cushion.
2. Raising front side of the seat cushion, pull it out.
3. Remove the seat back attaching screws.

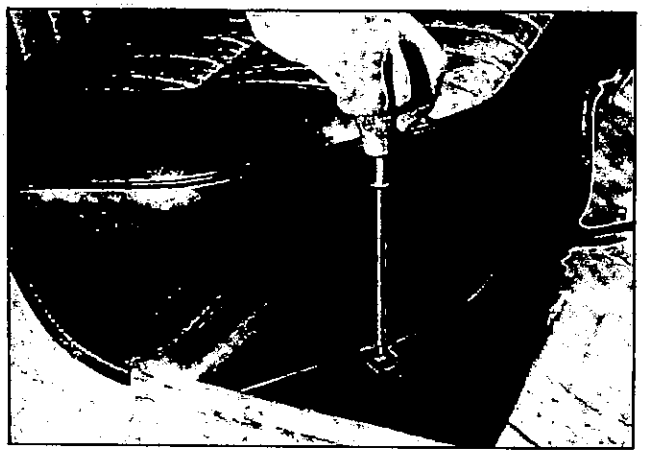

Fig. BF-62 Remvoing seat cushion fixing screws

Fig. BF-63 Removing seat back installation screws

4. Unhook the seat back at the rear bulk head upper portion.

Rear seat (coupe)

1. Raising rear side of the seat cushion, pull out the cushion stopper, and remove the seat cushion.

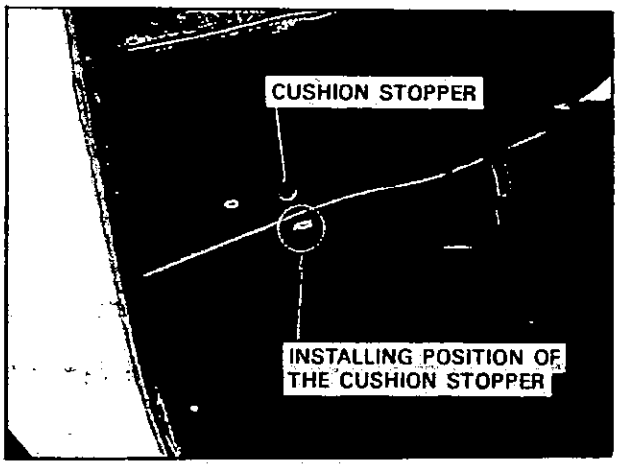

Fig. BF-64 Removing rear seat cushion

2. Loosen installation screws, and remove the seat back.

Rear seat (Station wagon or Van)

1. Turn down the seat cushion forward, remove four screws, and remove the seat cushion as shown in Figure BF-65.

Fig. BF-65 Removing rear seat cushion

2. With the seat back turned down, remove two screws from the wheel house, and remove the seat back.

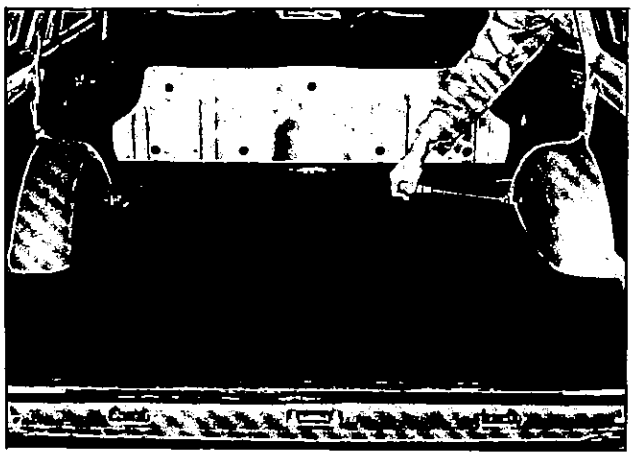

Fig. BF-66 Removing rear seat back

Reinstallation

Reinstall the seat cushions and seat backs in reverse sequence of removal.

HEAD REST (OPTION)

When installing head rest on front seat, remove the plug on the seat back, and insert the head rest supports into the holes.

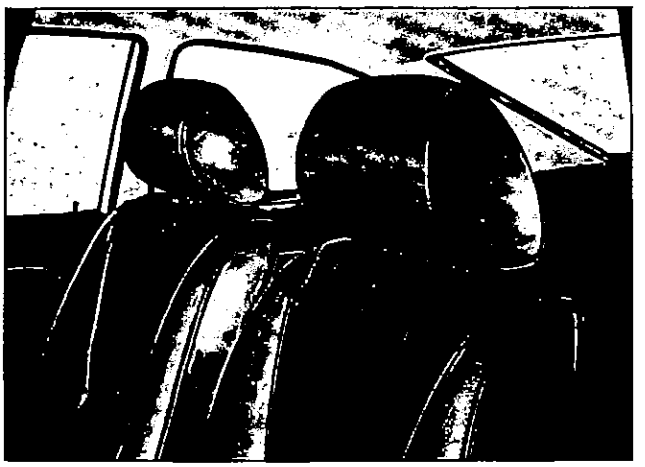

Fig. BF-67 Head rest

SEAT BELT (OPTION)

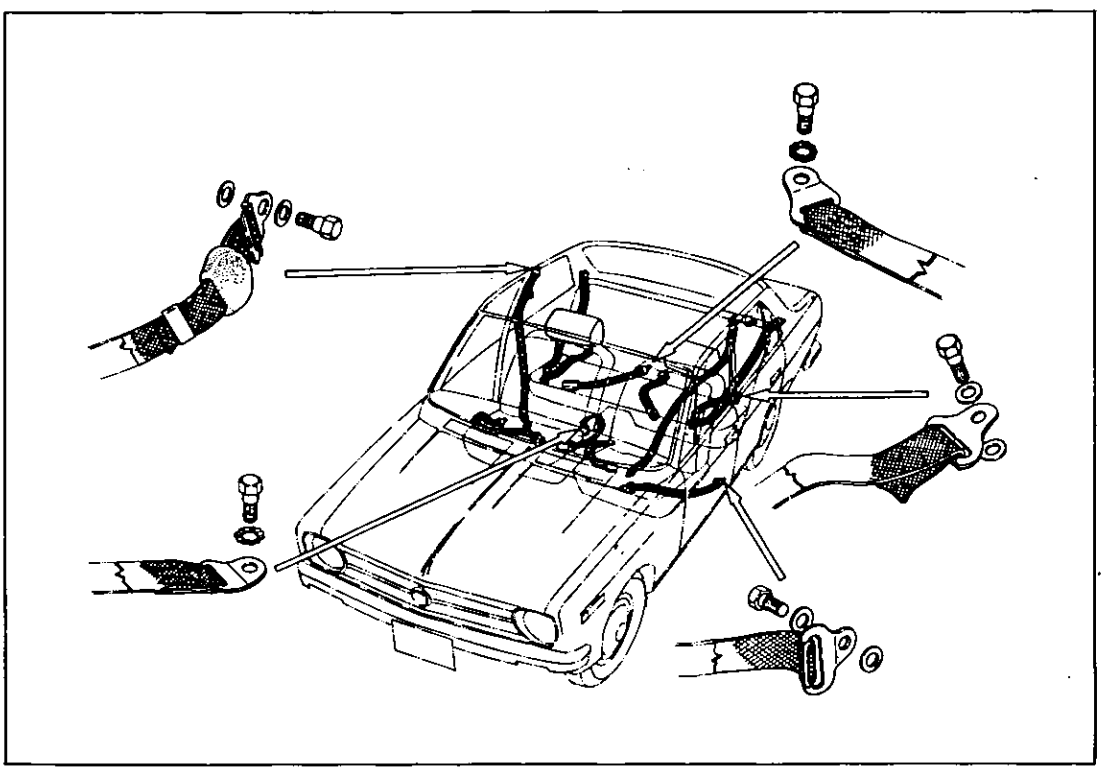

Fig. BF-68 Seat belt installing positions

INSTRUMENT PANEL

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REMOVAL BF-36
REINSTALLATION BF-37

REMOVAL

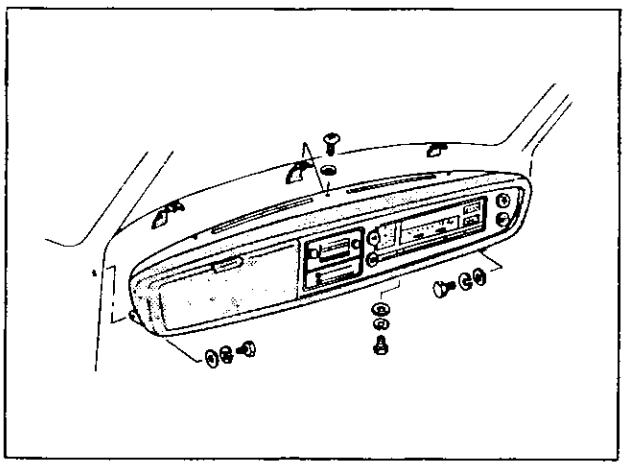

Fig. BF-69 Removing instrument panel

Note: There are two types of instrument panel; square type and round type. However, both of them are removed and reinstalled in the same manner.

1. Disconnect the battery cable at the battery terminal.

2. Disconnect the wiring harness connector units.

Disconnect the instrument harness from the engine compartment harness.

Disconnect the instrument harness from the turn signal switch.

Disconnect the instrument harness from the body harness.

Disconnect the instrument harness connected to the door switch, stop lamp switch, flasher unit and passing light relay (option).

Note: When disconnecting the wiring harness, recommend to use tags for identifing their relationship.

3. Disconnect cables for radio, antenna and speaker.

4. Remove the package tray, the shell cover and turn signal switch.

Note: Work may be carried out without removing the steering wheel. However, recommend to remove the steering wheel so that work can be carried out more easily.

5. Disconnect the speedometer cable from the speedometer unit.

6. Disconnect the heater control cable at the heater side.

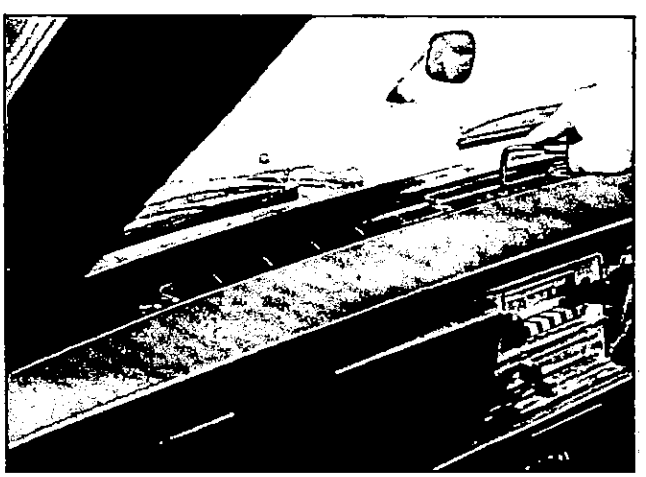

Fig. BF-70 Removing instrument panel (1)

7. Remove three screws from top of the instrument, one each installation bolt from both sides of the bottom, and two bolts used to secure the instrument panel together with the steering column clamp.

8. Raising the instrument panel slightly, pull it toward rear side of the vehicle, and remove it.

Note: Ensuring that all cables are disconnected, remove the instrument panel slowly and carefully.

REINSTALLATION

Reinstall the instrument panel in reverse sequence of removal.

Fig. BF-71 Removing instrument panel (II)

ROOM TRIM

INSTALLING HEAD LINING

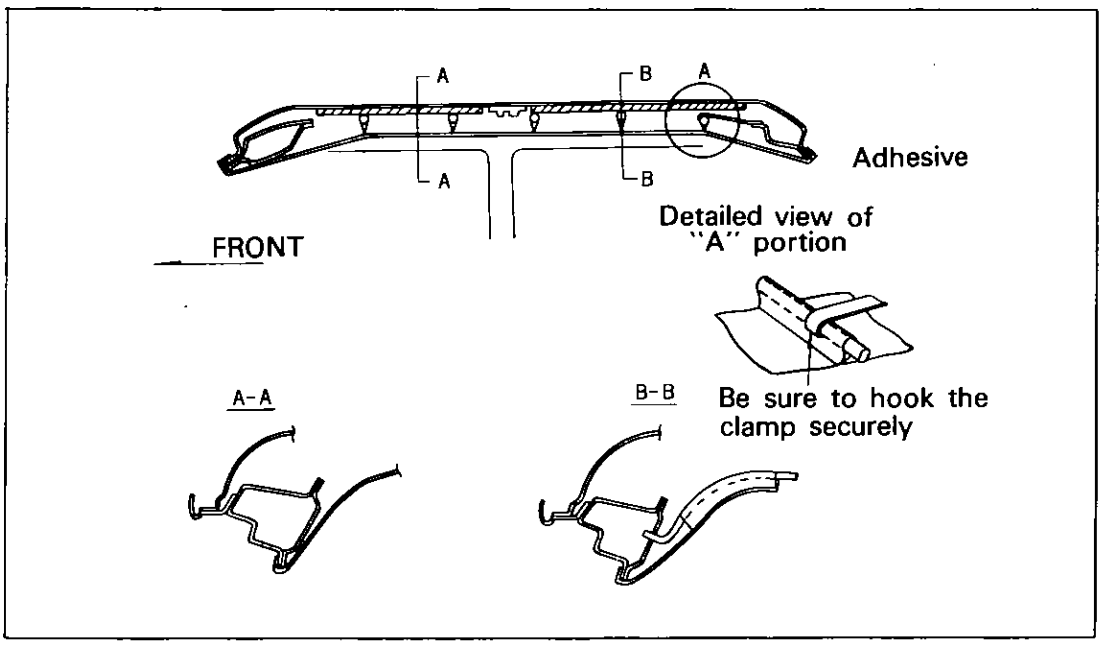

Fig. BF-72 Installing head lining

Note: Be sure to install the roof insulator before installing the head lining.

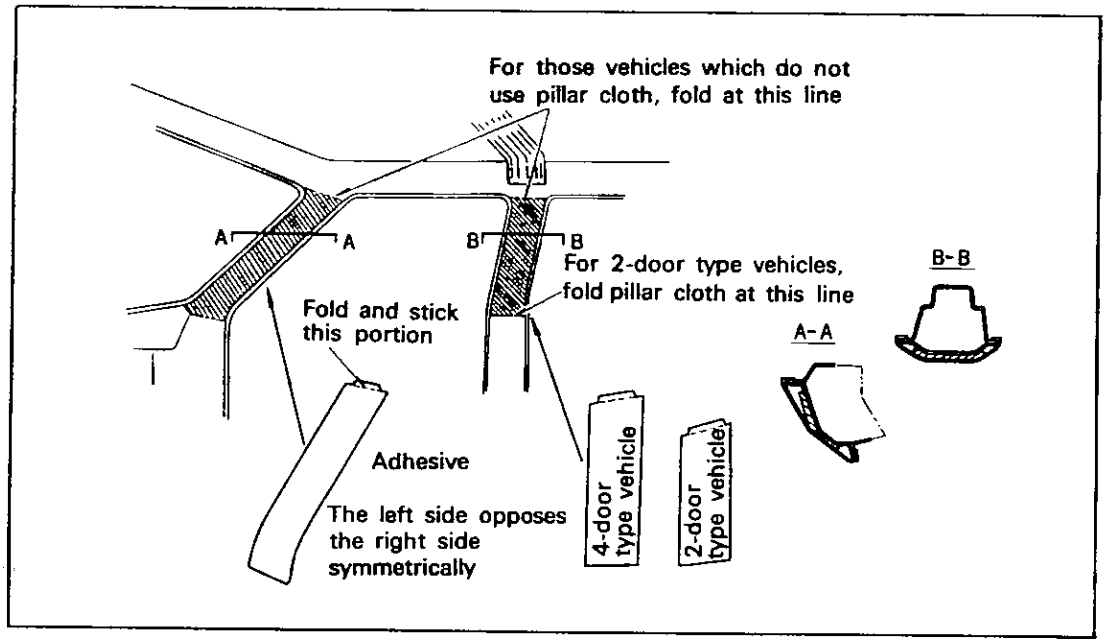

Fig. BF-73 Installing windshield and center pillar cloth

Note: Be sure to apply pad before installing cloth.

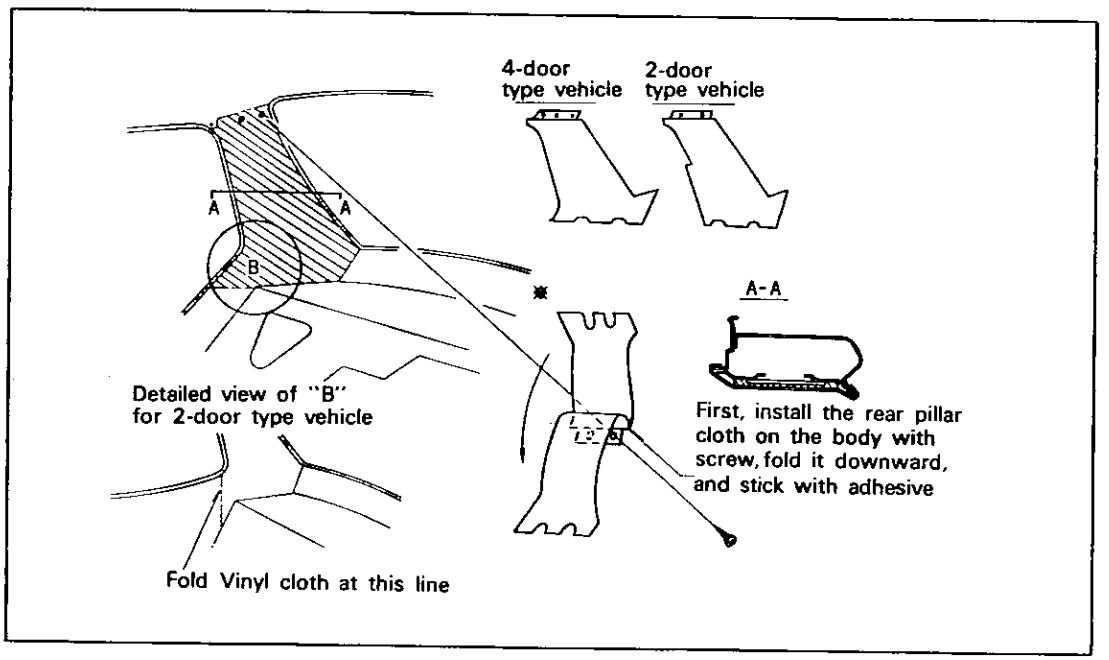
4-door type vehicle
2-door type vehicle
A
A
B
A-A
Detailed view of "B" for 2-door type vehicle
First, install the rear pillar cloth on the body with screw, fold it downward, and stick with adhesive
Fold Vinyl cloth at this line

Fig. BF-74 Installing rear pillar cloth

Note: Be sure to apply pad before installing cloth.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION BE

BODY ELECTRICAL

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BE

WIRING

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WIRING HARNESS

The wiring harness is classified into engine compartment harness, instrument harness, and body harness. The individual harness locating positions and connecting positions between the individual wiring harnesses are indicated as follows. Moreover, for the body harness, the installing positions differ mutually in Sedan, Coupe, Station wagon and Van.

Engine compartment harness

Fig. BE-2 Engine compartment harness (2)

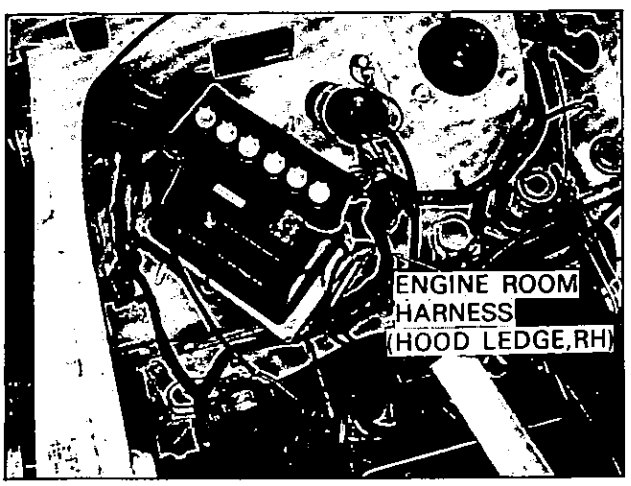


Fig. BE-1 Engine compartment harness (1)

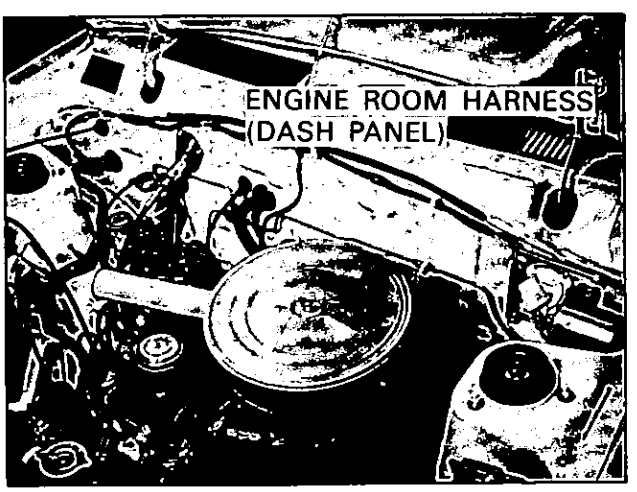


Fig. BE-3 Engine compartment harness (3)

Instrument harness

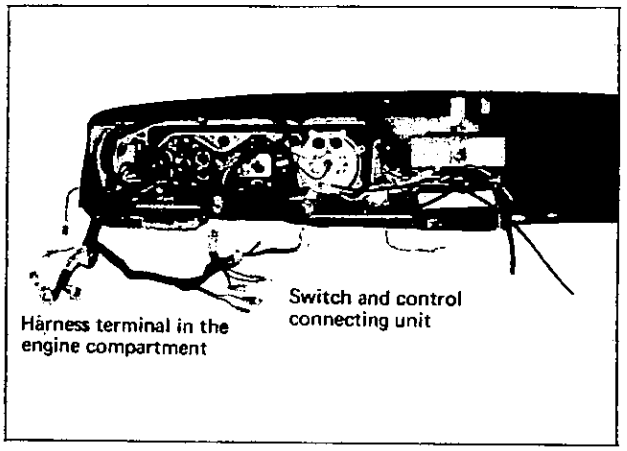
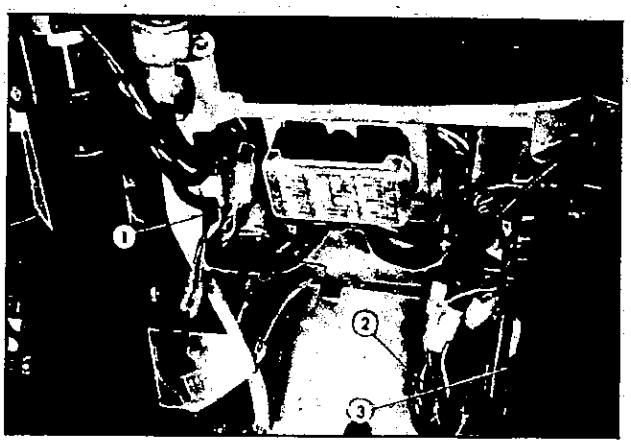


Fig. BE-4 Instrument harness



1	Instrument harness	3	Body harness
2	Engine room harness		

Fig. BE-5 Wiring harness connections

Body harness

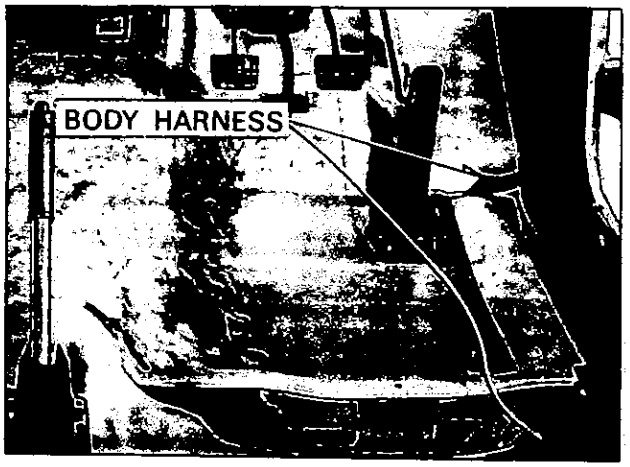


Fig. BE-6 Body harness (1)

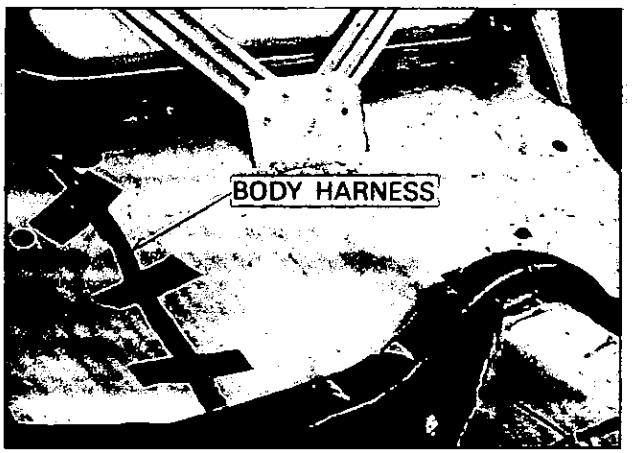
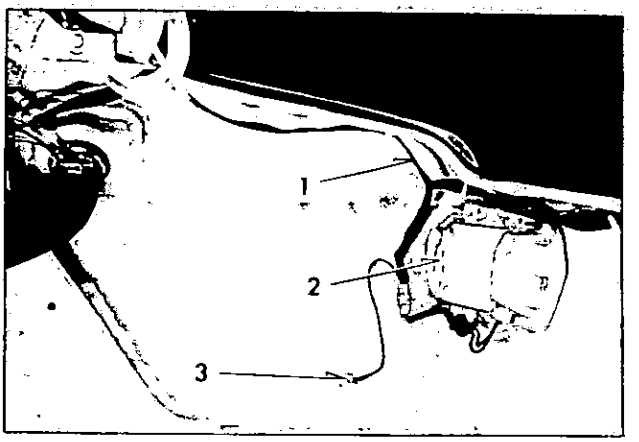
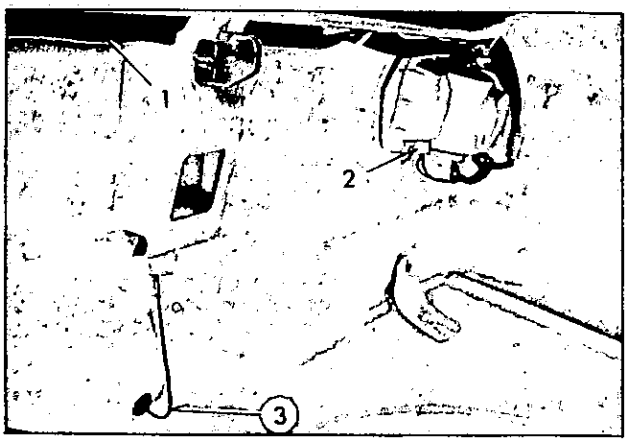


Fig. BE-7 Body harness (2)



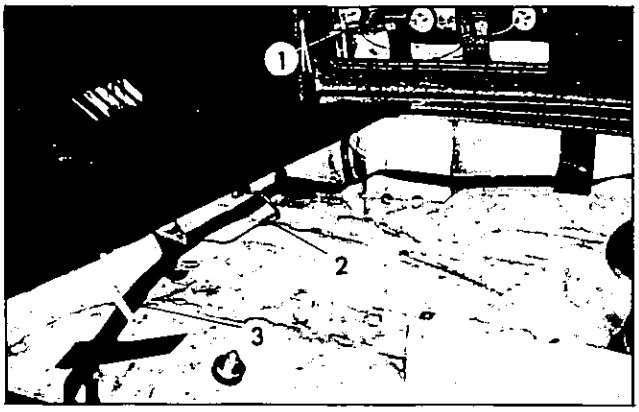
1	Body harness	3	Body earth
2	Combination lamp (RH)		

Fig. BE-8 Body harness (sedan)



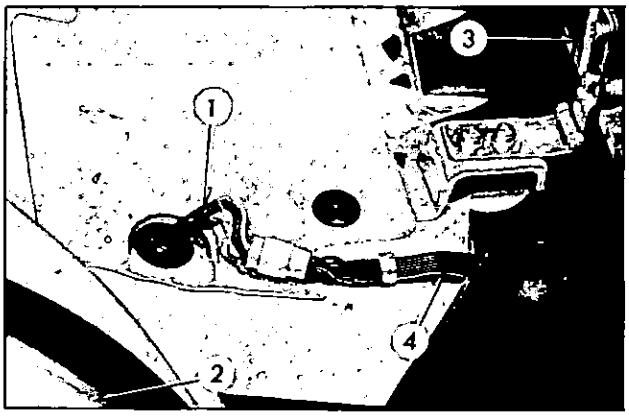
1	Body harness	3	To license lamp
2	Combination lamp (LH)		

Fig. BE-9 Body harness (sedan)



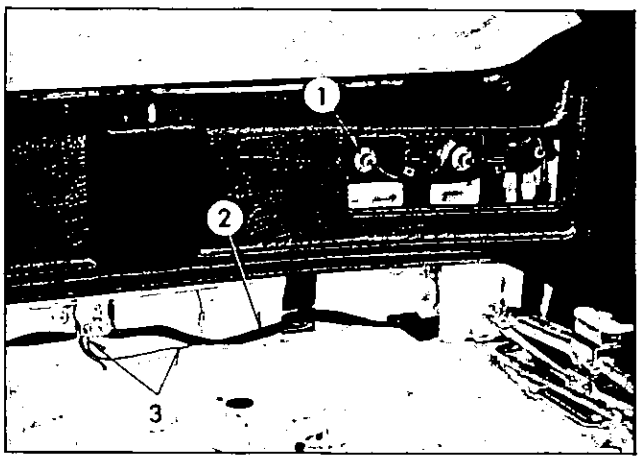
1	Combination lamp (RH)	3	Body harness
2	To tank unit		

Fig. BE-10 Body harness (coupe)



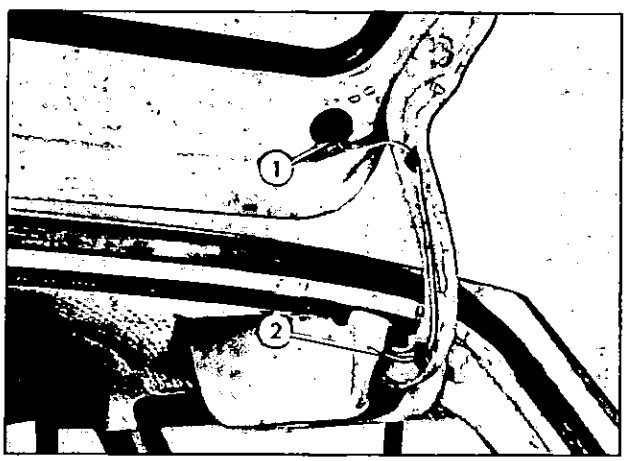
1	Tail harness	3	Rear seat
2	Wheel house (RH)	4	Body harness

Fig. BE-12 Body harness (Station wagon and Van)



1	Combination lamp (LH)	3	To license lamp
2	Body harness		

Fig. BE-11 Body harness (coupe)



1	To license lamp	2	Tail harness

Fig. BE-13 Body harness (Station wagon and Van)

WIRING DIAGRAM

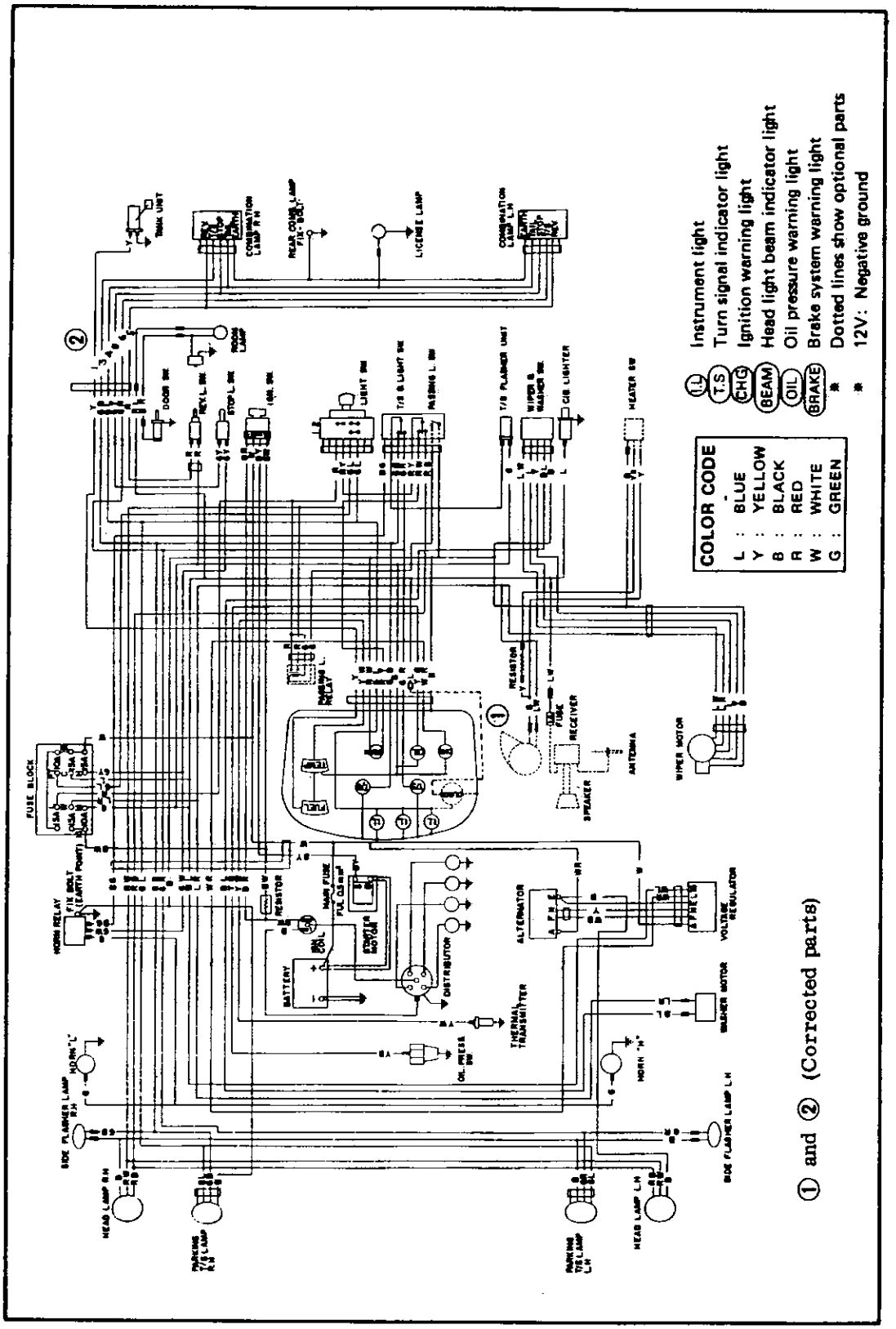


Fig. BE-14 Wiring diagram

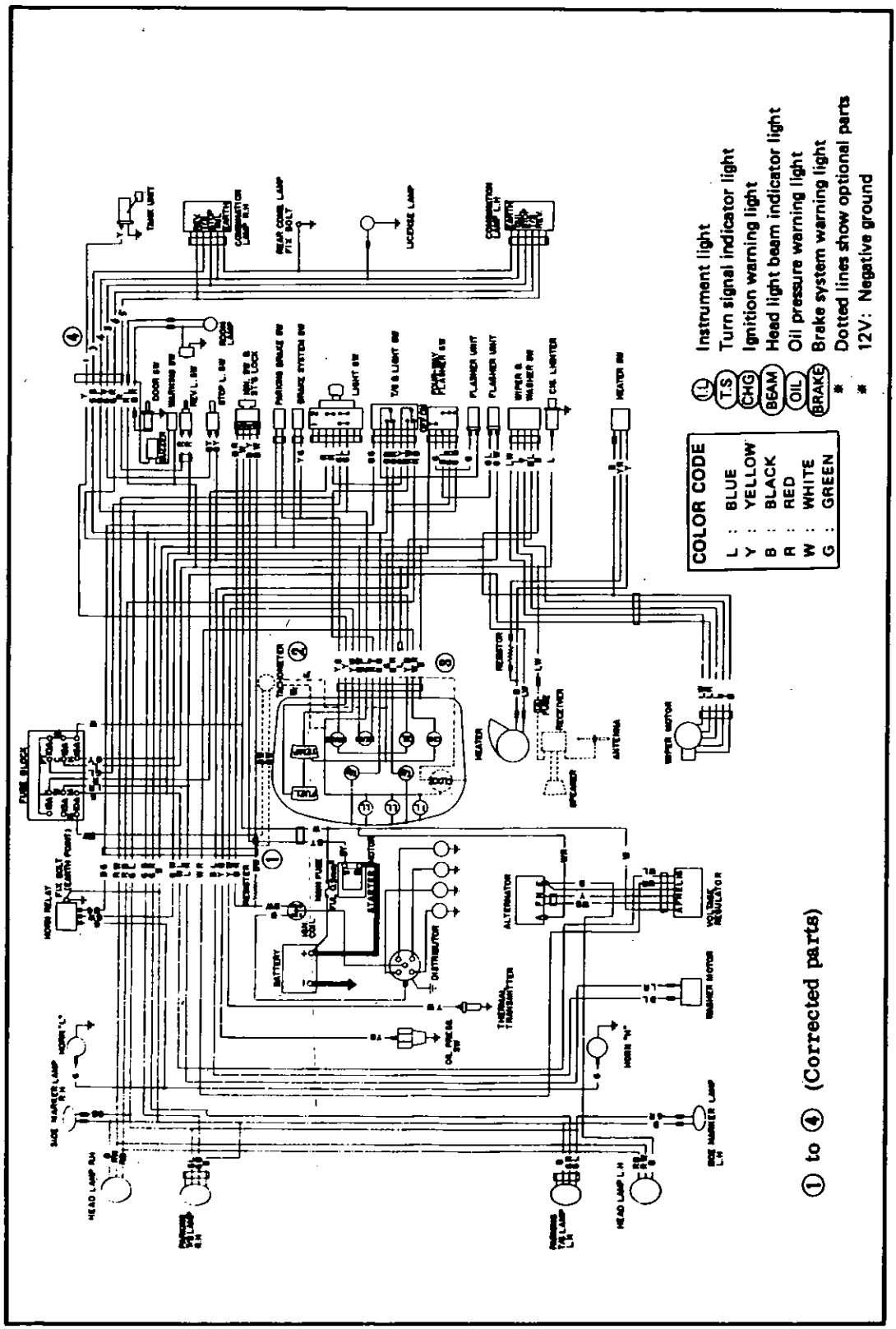


Fig. BE-15 Wiring diagram for USA, CANADA

INSPECTION

Referring to the wiring diagram, check the wiring harness for connection with electrical equipment and connector for connection and installation. When checking the wiring harness, note the following matters:

1. Connected unit should not be loose, rusted, or contaminated.

2. Cable insulator cover should not be damaged, cracked, or insulating material should not be deteriorated.

3. For those parts which are grounded through the installation bolts, the bolts should be in contact with the body completely so that continuity is provided in between the body and bolts.

4. Terminals of unit through which current flows should not come into contact with other metal parts.

5. No erroneous connection should be present.

6. Cables should be clamped so that they do not come into contact with sharp corner or part temperature of which rises highly.

7. Cables should be securely clamped in positions sufficiently separated from rotating parts such as fan, pulley, fan-belt, etc.

8. Cables should be provided with an optimum extra length at sections stationarily on the body or at sections where vibration occurs due to engine operation and others.

Note: a. When inspecting or performing other maintenance service and no power supply is required particularly or when it is anticipated that a part may be short-circuited, disconnect the battery (-) terminal.

b. In no event should an unloaded circuit be directly connected with ground. Be sure to use a test lamp or circuit tester.

FUSE

DESCRIPTION

When an overcurrent exceeding the rated amperage flows to a circuit, the fuse is heated and melted, the circuit is interrupted, and thus, cables and electrical equipment are protected from damaging due to burning or damaging is limited to the minimum. This vehicle is equipped with six fuses and one fusible link. The fuses are located in the fuse box and used to protect illumination, signal, and other systems, and the fusible link is adopted in the cable between the battery and alternator to protect the charging and starting circuits.

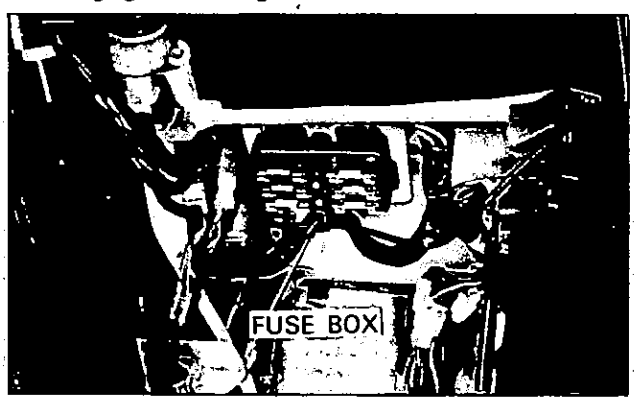


Fig. BE-16 Fuse box

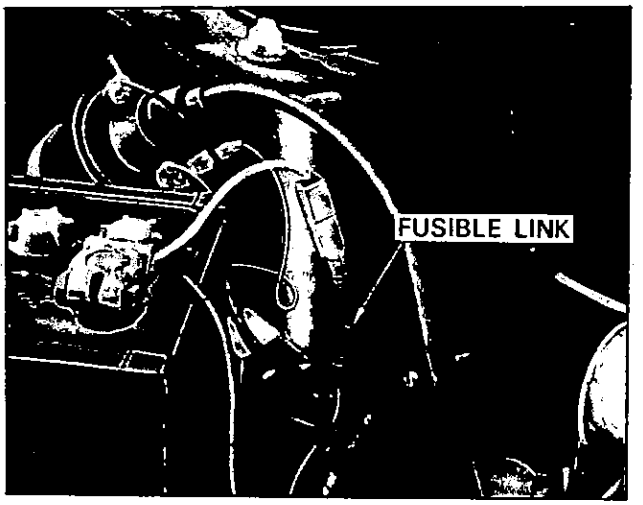


Fig. BE-17 Fusible link

INSPECTION

In the most cases, fuse can be checked visually. However, when it is difficult to check visually, a circuit tester may be used. The fusible link can be inspected visually or by feeling on finger tip. However, the fusible link can be inspected more correctly by using a circuit tester.

Note: a. When a fuse is blown off, be sure to correct the cause before installing new fuse.

b. Be sure to use fuse having the rated capacity. Do not use fuse having larger capacity (i.e., 20A, 30A, etc.)

c. Particularly when the fusible link is fused, replace with a designated fusible link. In comparison with fuse, much higher current flows through the fusible link. Green color link for model B110.
Moreover, it is important to eliminate the cause of blown off fusible link before replacing.

d. When fuse is connected incorrectly and the contact is loose, voltage drops and heat is generated resulting abnormally operated electrical equipment. Remove dust or when oxidized, polish with a fine emery paper so that the contact is improved.

LIGHTING SYSTEM

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HEAD LAMP

Description

All weather type sealed beam 2-light system front lamps are adopted. Each lamp of both side head lamps is provided with high beam filament for driving (50W) and low beam filament for dipping (40W). In other words, the lamp is of a double filament type.

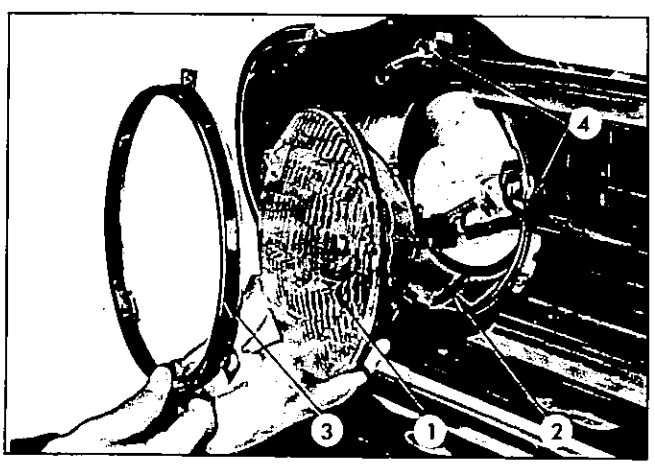
Sealed beam replacement

1. Remove the wiring socket from back of the head lamp.

2. Remove the screws attaching the front grille to the radiator core support. (Coupe only)
Remove three retaining screws, and remove the head lamp rim. (All other than coupe)

3. Loosen three screws used to install the retaining ring on the sealed beam mounting ring, and remove the sealed beam unit.

4. When installing a new unit, be sure to position the "Top" mark to the top of ring.



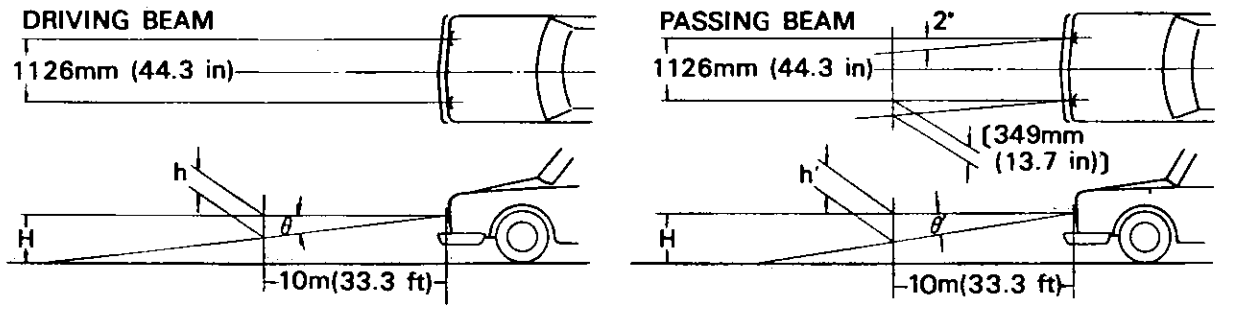
1	Sealed beam unit	3	Retaining ring
2	Sealed beam mounting ring	4	Aiming adjusting screws

Fig. BE-18 Replacing sealed beam

Aiming adjustment

For aiming adjustment, an aiming machine, head light tester, screen type tester, and other instruments are used. For the operating instructions of those instruments, refer to the instruction manual of the instrument to be used.

For the correct aiming adjustment, level the vehicle to the ground, remove all loads such as luggages and passengers except for the standard equipment (spare tire and tools), and make sure that pressures of all tires are correct. Vertical and horizontal directions of the head lamp are adjusted respectively with two adjusting screws located in upper and side portions of the head lamp mounting ring.



	H	Driving beam		Passing beam	
		θ'	h'	θ'	h'
Sedan Coupe	660 mm (26.0 in) 664 mm (26.1 in)	40'	116 mm (4.57 in)	2°10'	204 mm (8.03 in)
Van	660 mm (26.0 in)	1°10'	204 mm (8.03 in)	2°40'	466 mm (18.3 in)

Fig. BE-19 Head lamp aiming adjustment

FRONT PARKING AND TURN SIGNAL LAMP, SIDE FLASHER (MARKER) LAMP, AND LICENSE LAMP

When removing the bulb, with the lens removed, pushing toward the socket, turn the bulb counter-clockwise.

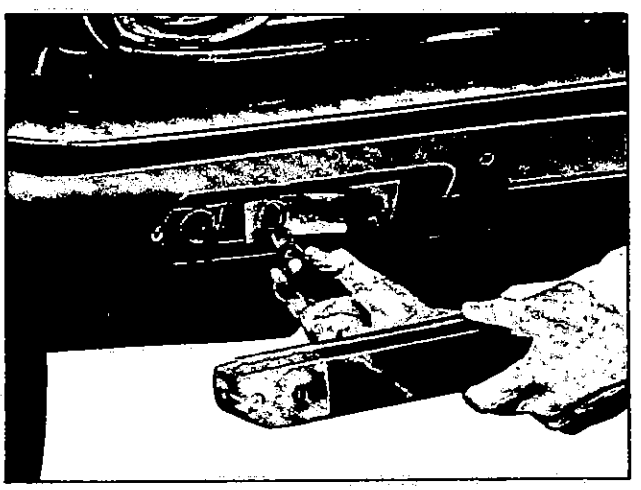


Fig. BE-20 Replacing parking and turn signal lamp bulb

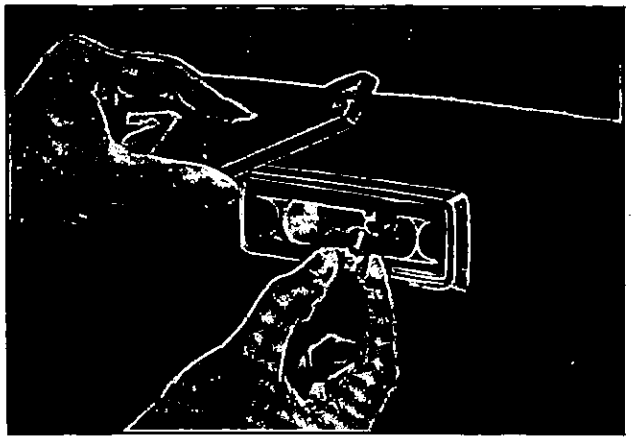


Fig. BE-21 Replacing side flasher lamp bulb

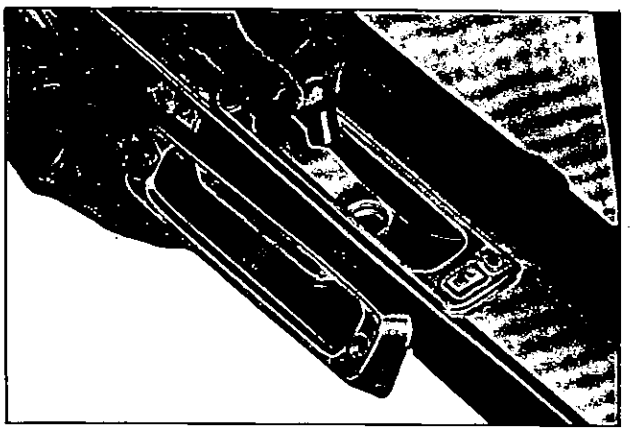


Fig. BE-22 Replacing license lamp bulb

REAR COMBINATION LAMPS

When removing the bulb, turning it counterclockwise, remove the socket from the lamp housing, and remove the bulb from the socket.

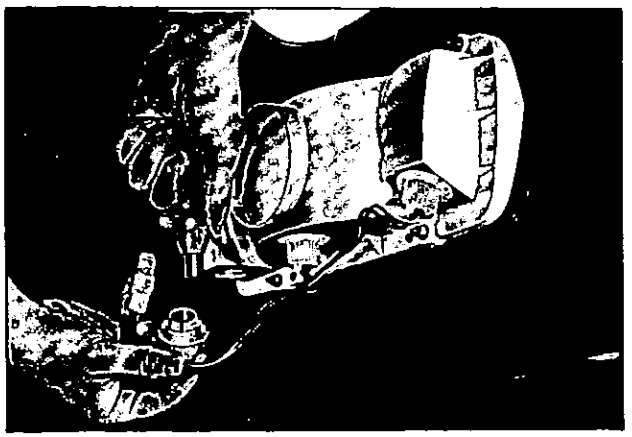


Fig. BE-23 Replacing rear combination lamp bulb

When removing the rear combination lamp assembly, remove the socket from the lamp housing, remove fixing nuts, and remove the combination lamp assembly.

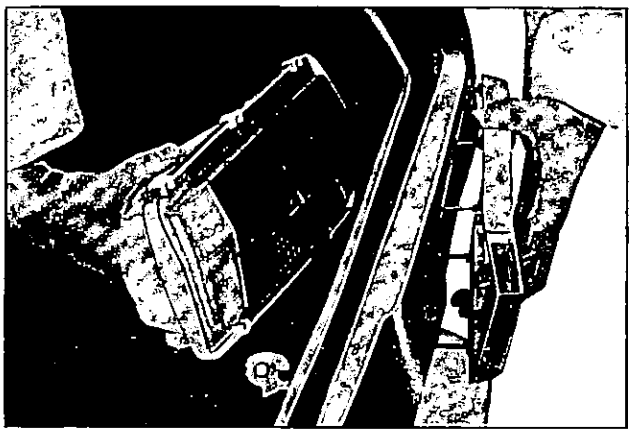
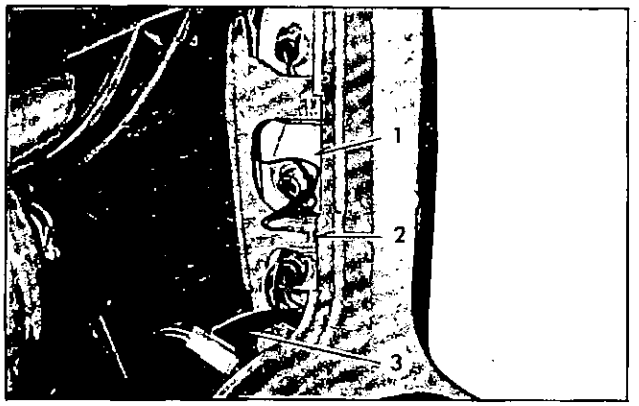


Fig. BE-24 Removing rear combination lamp (sedan)



1	Combination lamp (RH)	3	Tail harness
2	Body earth		

Fig. BE-25 Removing rear combination lamp (van)

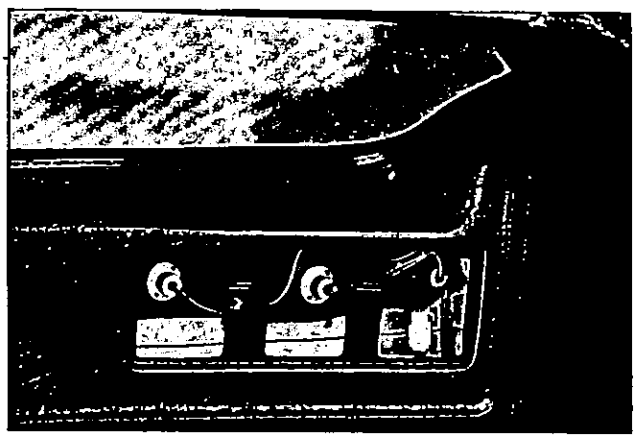


Fig. BE-26 Removing rear combination lamp (coupe)

BULB SPECIFICATIONS

Item	Specifications	
	For other than U.S.A. and Canada	For U.S.A., Canada
Head lamp unit Main/Dimmer	12V-50/40W(2)	←
Front parking & Turn signal lamp	12V-21W (1) F/P 12V- 5W (1) T/S	12V-23/8W (1)
Side flasher lamp	12V- 6W (2)	
Side marker lamp		12V-8W (2)
License lamp Sedan Coupe & Van	 12V-10W (1) 12V-7.5W (2)	 12V-7.5W (1) ←
Rear combination lamp Tail & Stop Turn signal Back up	 12V-21/5W (2) 12V-21W (2) 12V-21W (2)	 12V-23/8W (2) 12V-23W (2) 12V-23W (2)
Room lamp	12V-10W (1)	←

Figure encircled in parentheses indicates number of bulbs used.

TURN SIGNAL AND DIMMER COMBINATION SWITCH

Removal

1. Disconnect the combination switch from the wire harness at the connector plug and flasher unit terminal.

Fig. BE-27 Removing turn signal and dimmer combination switch

2. Loosen two bolts used to install the horn ring on the steering wheel by applying the tool from reverse side of the steering wheel, and remove the horn ring.

3. Remove the steering wheel fixing nut, and remove the steering wheel.

4. Unscrew two fixing screws and a locating screw, and remove the shell cover.

5. Unscrew two screws used to install the switch on the steering tube, and remove the switch from the locating hole on the steering tube. Now, remove the switch unit completely.

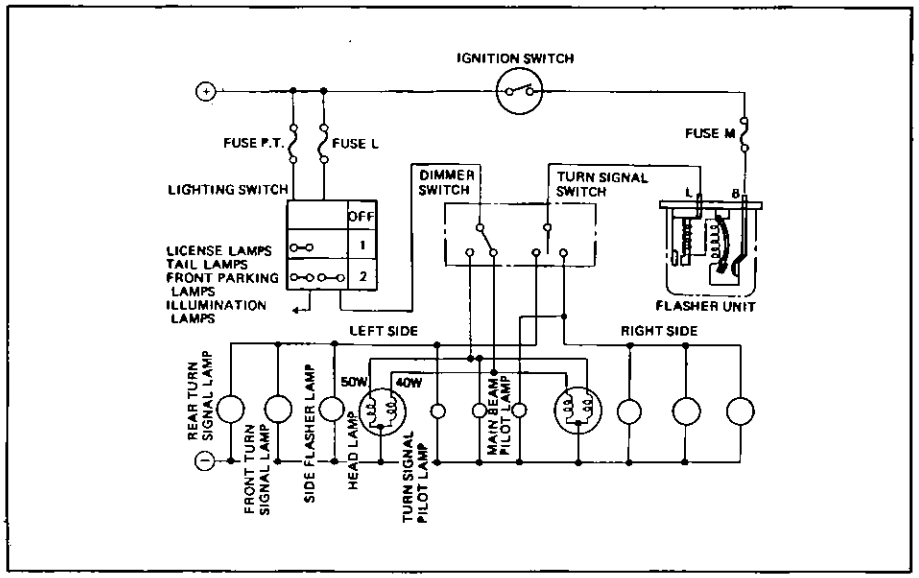


Fig. BE-28 Circuit diagram for turn signal and dimmer switch system

LIGHTING SWITCH

Removal

(1) Remove the connector from back of the lighting switch.

(2) Depressing the lighting switch knob, turn it counter-clockwise, and remove it.

(3) Loosen the escutcheon, and remove the lighting switch from the cluster lid.

HAZARD WARNING SWITCH

The hazard lamp system (4-way flasher) consists of hazard warning switch and flasher unit. When the hazard warning switch is turned on, all signal lamps flash simultaneously, telling other drivers that the vehicle is stopped. When the turn signal lamps flash, the pilot lamps on the instrument panel also flash telling you of hazard lamp operation.

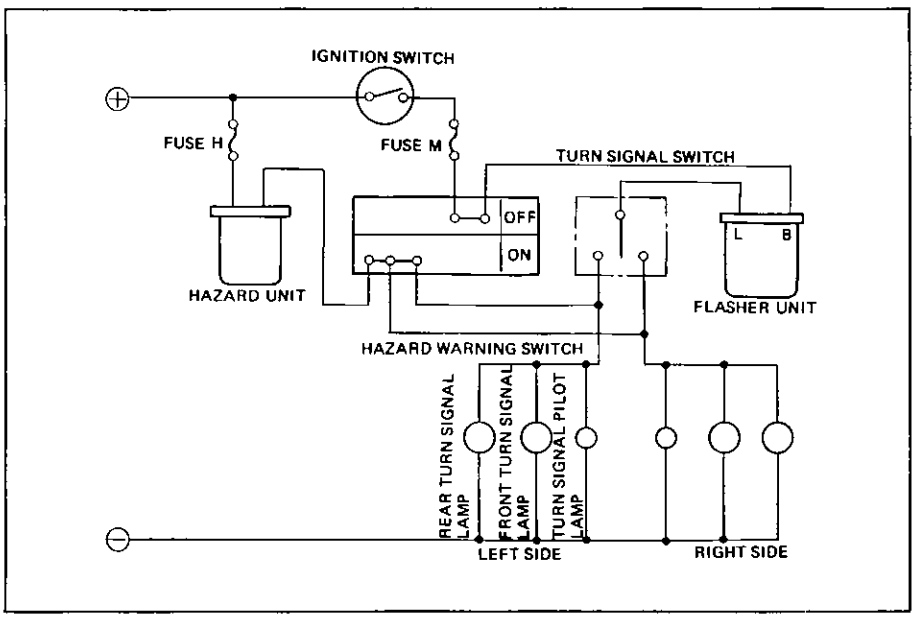


Fig. BE-29 Circuit diagram for hazard lamp system

PASSING LIGHT SWITCH

The passing light switch, is incorporated in the grip end of the turn signal switch lever, and controls the head lamp main beams. With either the lighting switch turned on or off, the head lamp main beams will light while the switch button is pushed in.

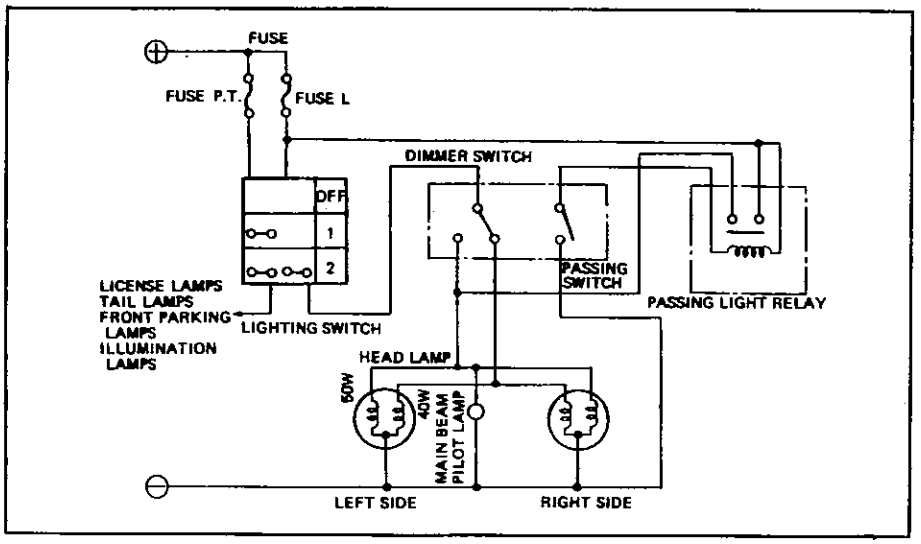


Fig. BE-30 Circuit diagram for passing light system

TROUBLE DIAGNOSES AND CORRECTIONS

Head lamp

Troubles	Possible causes	Method of inspection	Remedies
All lamps do not light.	Blown off fuse or faulty contact	Check the fuse block and white cable for contact.	Repair as required.
		Check the fuse for fusing and faulty contact.	When fused, detect and repair the cause, and replace the fuse.
	Faulty lighting switch terminal connector	Check the connector for contact.	Repair as required.
	Defective lighting switch	Conduct continuity test	If the lighting switch is defective, replace.
The head lamp does not light for both high and low beams.	Blown off fuse or faulty contact	Check the fuse for fusing and faulty contact.	When fused, detect and repair the cause, and replace the fuse.
	Improper dimmer switch contact	Check the connector for contact.	Repair as required.
	Defective dimmer switch	Conduct continuity test.	If the dimmer switch is defective, replace.

Main (high) beam cannot be switched to dimmer (low) beam or vice versa.	Defective dimmer switch	When red/yellow cable is connected to red/white cable (or red/black cable), and the main beam (or dimmer beam) lights, the circuit is normal. The dimmer switch is defective.	Conduct continuity test, and if the dimmer switch is defective, replace.
Head lamps dim	Defective light circuit	Check the head light circuit for cable being about to break and faulty contact, or check fuse for faulty contact.	Repair, or replace if required.
Head lamps dim when the engine is stopped or operated under idling speed.	Partly discharged battery	Measure specific gravity of electrolyte.	Charge battery if required.
	Defective battery		Replace battery.
Head lamps still dim with engine run above idling speed.	Faulty sealed beam unit	Voltage between head lamp red/white cable and red cable terminals is 12.8V or higher.	Replace sealed beam units.
	Faulty charging system	Voltage is less than 12.8V through above test.	Check the generator regulator, and light circuit.
Head light in only one side lights.	Faulty head lamp termianl contact		Repair as required.
	Defective lamp		Replace lamp.

Turn signal lamps

Troubles	Possible causes	Method of inspection	Remedies
All turn signal lamps do not light.	Blown fuse or faulty contact.	Check the fuse for fusing and faulty contact.	When the fuse is fused, detect and repair the cause, and replace the fuse.

	Faulty flasher unit terminal contact or defective flasher unit	When two lead wires of the flasher unit are connected with the turn signal switch turned on, and the individual turn signal lamps light, the flasher unit is defective.	Repair the connector terminal or replace the flasher unit.
	Defective turn signal switch.	Conduct continuity test.	If the turn signal switch is defective, replace.
All turn signal lamp do not go out.	Defective flasher unit		Replace the flasher unit.
Flashing cycle is too low.	There is a lamp which does not flash.	Check the lamp for burnt out filament and improper socket contact.	Replace if required.
	Faulty contact in the circuit.		Repair as required.
	A lamp having wattage less than the specified wattage is used.		Replace.
	Defective flasher unit		Replace the flasher unit.
Turn signal lamp flashing cycle is too high.	Short-circuit.		Repair as required.
	A lamp having wattage larger than the rated wattage is used.		Replace.
	Defective flasher unit		Replace the flasher unit.
Flashing cycle of the left (or right) side turn signal lamp differs from that of the right (or left) side turn signal lamp. Only left or right side turn signal operates	Burnt out lamp bulb filament.	Check all lamps for operation. Check lamp which does not light for burnt out filament and defective socket.	Replace as required.
	Faulty connector contact.	Check both side lamps for difference in brightness.	Repair as required.
	A lamp other than specified is used.		Replace with the specified one.

Flashing cycle varies.	Faulty contact of power supply circuit from ignition switch to fuse.	When the windshield wiper (which uses the ignition for power supply) is operated, flashing cycle and brightness change.	Repair as required.

Tail and stop lamp, license lamp, back up lamp

Troubles	Possible causes	Method of inspection	Remedies
Both left and right lamps do not light.	Blown off fuse or faulty contact	Check the fuse for fusing and faulty contact.	When the fuse is fused, detect and correct the cause, and replace the fuse.
	Defective stop lamp switch or backup lamp switch, or faulty contact. (Stop lamps and backup lamp only)	When two lead wires of the switch are connected and the lamp lights, the lamp and circuit are normal.	Replace the switch or repair the connector terminal.
	Faulty grounding	All rear combination lamps do not light.	Repair the grounding cable contact.
Only one side lamp lights.	Burnt out lamp bulb filament.		Replace the lamp with a new one.
	Faulty contact of connector terminal and/or socket		Repair or replace.
Brightness of one side lamp differs from the other.	Faulty contact of connector terminal and/or socket.		Repair or replace if required.

HORN

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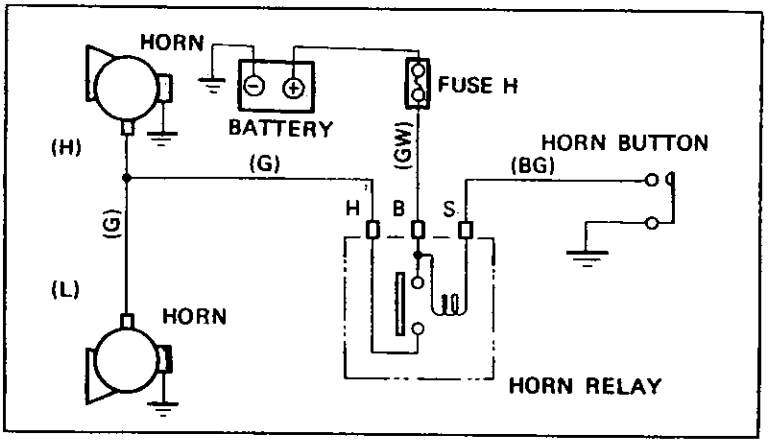

Fig. BE-31 Circuit diagram for horn system

HORN

Removal

Remove the connector, loosen the fixing nut in the horn center, and remove the horn unit.

Adjustment

1. Secure the horn unit in a vise, and connect cables as shown in Figure BE-32.

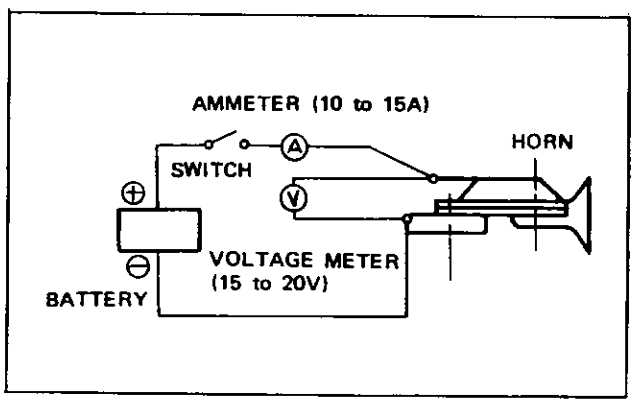

Fig. BE-32 Circuit for horn adjustment

2. Set the switch to "ON", and make sure that the voltmeter indicates 12 to 12.5 V.
3. Listening the horn for sound level, volume, and tone, adjust sound properly so that the ammeter indicates the rated amperage. The adjustment is made by turning the adjust screw, after loosening the lock nut.

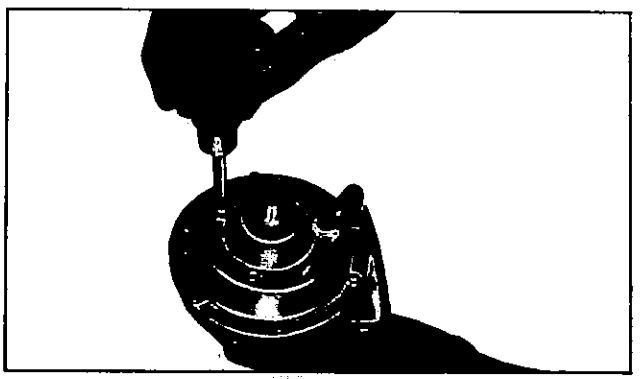

Fig. BE-33 Adjusting horn volume

Note: When the adjust screw is turned;

Clockwise:	**Current increases**
Counterclockwise:	**Current decreases**

4. When a proper sound is obtained through the above adjustment, make sure that the proper sound can be obtained at voltage generated by the alternator (14 to 15V).

5. Lock the adjust screw with the lock nut.

Sound	Consumed current adjusting value (A)	
	Flat type	Spiral type
High (H)	2.5 (390)	5.0 (440)
Low (L)	2.5 (330)	5.0 (350)

Figures encircled in parenthesis are basic frequencies (Hz).

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Method of inspection	Remedies
The horn does not operate	Excessively discharged battery	Measure specific gravity of electrolyte.	Charge if required
	Blown off fuse	Check the fuse for fusing and improper contact	Replace fuse
	Improper horn button contact.	The horn sounds though the horn relay terminal (S) is grounded.	Check and repair horn button
	Defective horn relay	The horn sounds though the horn relay terminals (B) and (H) are short-circuited.	Replace horn relay
	Defective horn	The horn does not sound though the horn relay terminals (B) and (H) are short-circuited, and the horn still does not sound though the battery (+) terminal is connected to the horn terminal directly.	Replace horn
The horn sounds continuously.	Defective horn relay	The horn does not stop though the horn relay (S) terminal is disconnected.	Replace horn relay.
	Short-circuited horn button and horn relay terminal (S).	When the horn stops through the above disconnection, check the horn button unit particularly carefully.	Repair horn relay terminal (S) Replace horn button.
Reduced volume and/or tone quality	Improper fuse wire contact		Correct.
	Broken cable		Repair or replace if required.
	Improper horn button contact		Repair.

METERS AND GAUGES

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CLUSTER LID

Description

The cluster lid holds various meters, indicators and clock located around the speedometer. Printed circuit board is used at the back of the meter as shown in Figure BE-34, and the printed circuit board is connected with multiple-connectors. Thus, the meters can be inspected and serviced extremely easily. Except for the speedometer, all meters are operated electrically. The fuel gauge and thermometer are very reliable, and they are equipped with bimetal devices.

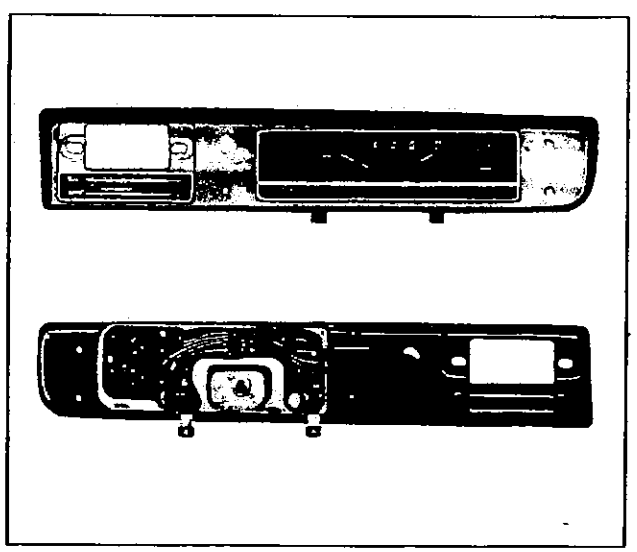


Fig. BE-34 Combination meters

Removal

1. Disconnect the battery (-) terminal, depressing the windshield wiper switch, lighting switch, and choke lever knobs, turn them counterclockwise to remove.
Remove the escutcheon.

2. Inserting your hand into back of the cluster lid, disconnect the cigarette lighter cable, and turn and remove the cigarette lighter outer case.

3. Remove the radio and heater control knobs.

4. Remove the shell cover from the steering tube, loosen the screws used to secure the meter housing to the instrument panel, and remove the cluster lid.

5. Pull out the 12-pole round shape connector, and remove the speedometer cable union nut.

6. Remove the cluster lid from the instrument panel.

Fig. BE-35 Removing cluster lid

SPEEDOMETER

The speedometer is equipped with a total odometer which records travelled distance.

Replacement

1. When removing the speedometer, remove the cluster lid first. Separate the combination meter housing from the cluster lid after removing four screws, and remove the trip recorder reset knob (if any).

2. Unscrew two screws, and remove the speedometer from the combination meter housing.

3. Reinstall a new speedometer in reverse sequence of removal.

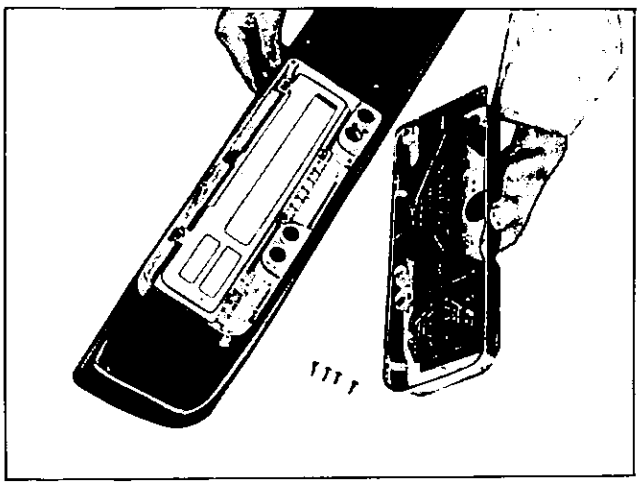


Fig. BE-36 Removing combination meter

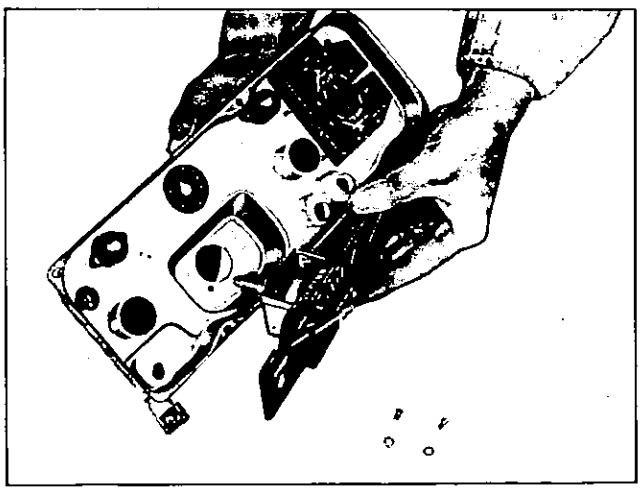


Fig. BE-37 Removing speedometer

FUEL GAUGE AND TEMPERATURE GAUGE

Description

The fuel gauge consists of a tank unit located in the fuel tank and fuel meter. The tank unit detects fuel level with its float, converts fuel level variation to a resistance of slide resistor installed on the float base, and thus, controls current flowing to the fuel meter.

The temperature gauge consists of a thermometer and thermaltransmitter located in the engine block. The thermaltransmitter is equipped with a thermistor element which converts cooling water temperature variation to a resistance, and thus, the thermaltransmitter controls current flowing to the thermometer.

The fuel meter and thermometer are provided with bimetal arm and heater coil. When the ignition switch is set to "ON", current flows to the heat coil, and the heat coil is heated. With this heat, the bimetal arm is bent, and thus, the pointer connected to the bimetal arm is operated.

The characteristics of both meters are same.

A tolerance may occur on the thermometer or fuel gauge due to source voltage fluctuation. The voltage regulator is used to supply a constant voltage so that the thermometer and fuel gauge operate correctly. The voltage regulator is built in the thermometer.

The operating part of the regulator consists of a bimetal arm and a heater coil. When the ignition switch is turned on, the bimetal arm is heated and bent by the coil, opening the contact. Consequently, current to the coil is interrupted. As the bimetal cools, the contact closes. The repetition of this operation produces a pulsating voltage of 8V which is applied to the temperature and fuel gauges.

If both thermometer and fuel meters become defective at the same time, this may be attributable to trouble in the voltage regulator.

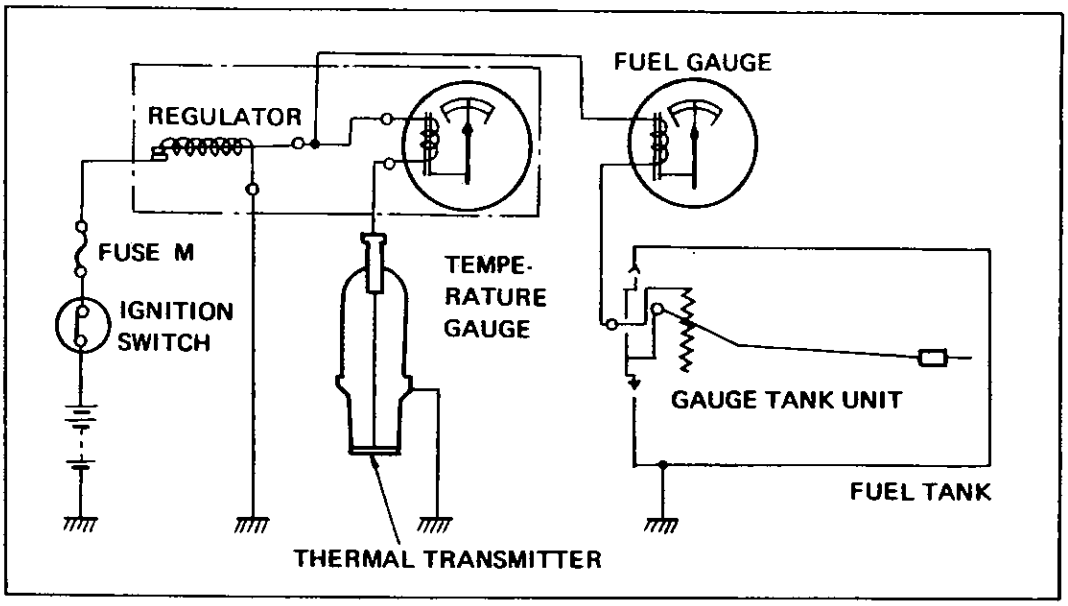


Fig. BE-38 Circuit diagram for fuel gauge, temperature gauge, and voltage regulator

Replacement

1. Remove the cluster lid, first.
2. Unscrew two screws, and remove the thermometer or fuel meter from the combination meter housing.
3. Reinstall a new meter in reverse sequence of removal.

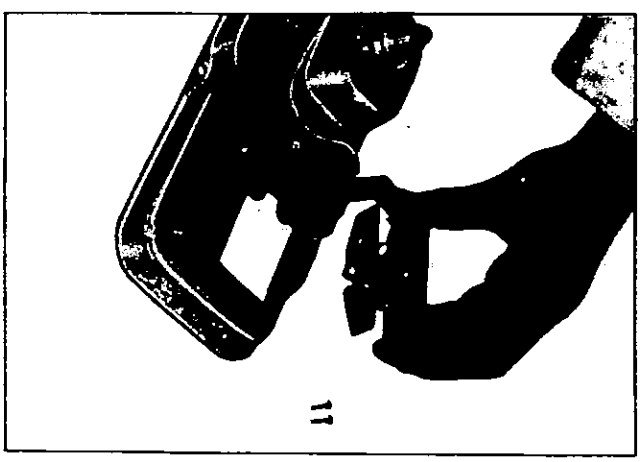


Fig. BE-39 Removing thermometer

OIL PRESSURE AND IGNITION WARNING LAMPS

The engine lubricating system incorporates an oil pressure warning lamp which glows whenever engine oil pressure falls below 0.4 kg/cm^2 to 0.6 kg/cm^2 (5.7 to 8.5 lb/sq in)

When the engine is stationary, the light glows with the ignition switch turned on. When the engine is running and the oil pressure reaches the circuit is broken and the light goes out.

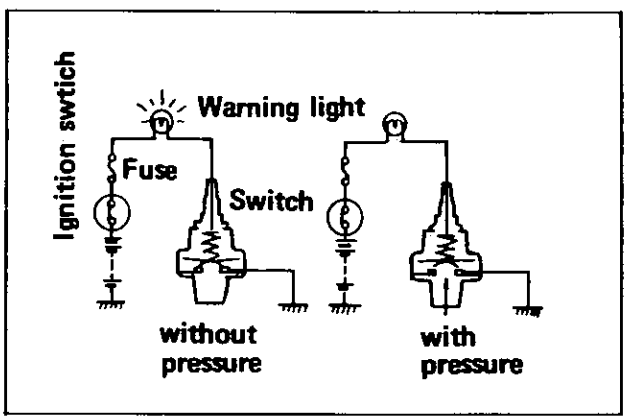


Fig. BE-40 Circuit of oil pressure warning system

Ignition warning lamp glows when the ignition switch is set to "ON" and the engine is not operated, or when the generator fails to charge with the engine operated.

When the ignition switch is set to "ON", the ignition warning circuit is closed and current flows flows from the ignition switch to the warning lamp bulb and ground through the regulator. When the engine is started and the generator comes into operation, the generator output current opposes the current flowing from the warning lamp; in effect it breaks the warning circuit ground connection, and the lamp goes out.

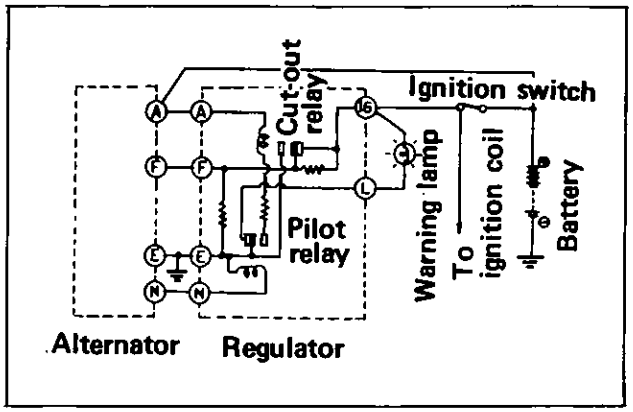


Fig. BE-41 Circuit of ignition warning system

HAND BRAKE WARNING LAMP

This lamp function both hand brake warning lamp and service brake line pressure differential warning lamp.

When a difference between front and rear brake line pressures reaches the rated range [13 to 17 kg/cm^2 (185 to 242 lb/sq in)], the ground circuit for the warning lamp is closed, and the warning lamp lights.

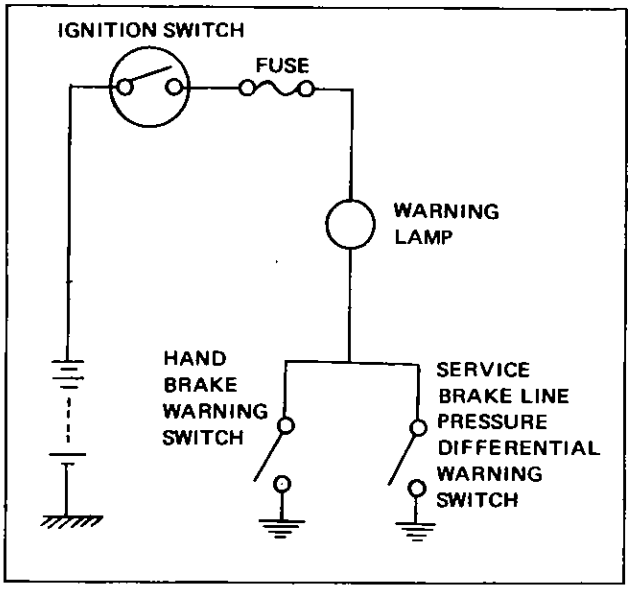


Fig. BE-42 Circuit diagram for brake warning system

BULB SPECIFICATIONS

Item		Specifications	
		Square type meter	Round type meter
Meter illumination lamp	V-W	12-3.4 (2)	12-1.7 (3)
Turn signal pilot lamp	V-W	12-3.4 (2)	12-1.7 (2)
Head lamp main (high) beam pilot lamp	V-W	12-3.4 (1)	12-1.7 (1)
Ignition warning lamp	V-W	12-3.4 (1)	12-1.7 (1)
Oil pressure warning lamp	V-W	12-3.4 (1)	12-1.7 (1)
Hand brake warning lamp	V-W		12-1.7 (1) for U.S.A., CANADA
Clock illumination lamp	V-W	12-3.4 (1)	12-1.7 (2)
Tachometer illumination lamp	V-W		12-1.7 (2)

Figure encircled in parentheses indicates number of bulbs used.

TROUBLE DIAGNOSES AND CORRECTIONS

Speedometer

Troubles	Possible causes	Remedies
The speedometer pointer and odometer do not operate.	Improperly tightened speedometer cable union nut	Retighten union nut correctly.
	Broken speedometer cable	Replace.
	Damaged speedometer drive pinion	Replace the drive pinion gear.
	Defective speedometer	Replace.
The speedometer pointer deflects widely.	Rapidly bent speedometer cable	Correct or replace.
	Damaged speedometer drive pinion gear	Replace the pinion gear.
	Defective speedometer	Replace.
Unstable speedometer pointer	Improperly tightened speedometer cable union nut	Retighten union nut correctly
	Defective speedometer cable	Replace the cable.
	Defective speedometer	Replace.
Unusual sound occurs in response to increase of driving speed.	Excessively bent or twisted speedometer cable inner wire or lack of lubrication	Replace the meter cable.
	Defective speedometer	Replace.
Inaccurate speedometer indication	Defective speedometer	Replace.
Inaccurate odometer operation	Improperly meshed second and third gear worm gears.	Replace the meter
	Faulty feeding due to deformed odometer and pinion carrier	Replace the meter

Thermometer and fuel meter

Troubles	Possible causes	Method of inspection	Remedies
Both thermometer and fuel meter do not operate.	Blown off fuse, or improper connection	Check the fuse for fusing and improper contact.	Replace after correcting the cause, if fused. Correct contact.
	Defective voltage regulator (Damaged, fused, or open contact)		The voltage regulator is combined with the thermometer to a single unit. When the voltage regulator is defective, replace it together with the thermometer.
Both thermometer and fuel meter indicate inaccurately.	Defective voltage regulator (Broken heat wire, seized contact and/or improper grounding)	Meter operates excessively.	Replace together with thermometer.
	Improper cable contact	Meter operates slightly.	Check the cable between fuse and meter for improper contact, and repair if required.
Thermometer			
The thermometer does not operate.	Defective thermaltransmitter	The pointer deflects when thermaltransmitter yellow/white cable is grounded.	Replace the thermaltransmitter.
	Defective thermometer.	The pointer does not deflect when thermaltransmitter yellow/white cable is grounded.	Replace the thermometer.
The pointer indicates maximum temperature.	Defective thermaltransmitter	The pointer moves to the low limit when the ignition switch is turned off.	Replace the thermaltransmitter.
	Defective thermometer	The pointer indicates maximum temperature even after the igniton switch is turned off	Replace the thermometer.

The thermometer does not operate accurately	Defective thermometer	The thermometer is serviceable when a 100 Ω resistance is applied to the thermaltransmitter yellow/white cable, the cable is grounded, and the thermometer indicates approximately 50°C. (122°F)	Replace, if defective.
	Defective thermaltransmitter	When the thermometer is normal through the above inspection.	Replace the thermal-transmitter.
	Improper cable contact.	The thermometer indicates a temperature slightly lower than the actual temperature.	Check the cable from the thermometer to the thermal-transmitter for cable being about to break, poor contact, and faulty grounding, and repair as required.
Fuel meter			
Fuel meter does not operate.	Defective tank unit.	The pointer deflects when the tank unit yellow cable is grounded.	Replace the tank unit.
	Defective fuel meter	The pointer does not deflect through the above inspection.	Replace the fuel meter with a new one.
The pointer indicates "Full" position.	Defective tank unit	The pointer lowers below the empty limit when the ignition switch is turned off.	Replace the tank unit.
	Defective fuel meter	The pointer still indicates "Full" position through the above inspection.	Replace the fuel meter.
Fuel meter functions improperly	Defective tank unit	The pointer indicates a half level when a 35 Ω resistance is applied to the tank unit yellow cable and the cable is grounded.	Replace if defective.
	Defective fuel meter	The pointer does not indicate a half level through the above inspection.	Replace the fuel meter.

	Improper cable contact.	The fuel meter indicates a level slightly lower than the actual level.	Check the cable from the fuel meter to the tank unit for cable being about to break, poor contact, and faulty grounding, and repair as required.

Oil pressure and ignition warning lamps

Troubles	Possible causes	Method of inspection	Remedies
Oil pressure warning lamp			
The lamp does not light when the ignition switch is set to "ON".	Blown off fuse or faulty contact	Check the fuse for fusing and faulty contact.	Replace after correcting the fuse the cause, if fused.
	Broken lamp bulb filament or faulty cable contact.	The warning lamp does not light when oil pressure switch yellow/ black cable is grounded.	Check the light bulb for burnt out filament, and replace as required.
	Defective oil pressure switch	The warning lamp lights through the above inspection.	Replace the oil pressure switch.
The lamp does not go out while the engine is being operated.	Oil pressure is too low.	Inspect the engine oil pressure system.	
	Lack of engine oil	Check oil level	Add oil.
	Defective oil pressure switch	Continuity exists on the oil pressure switch when the engine is being operated.	Replace the oil pressure switch.
Ignition warning lamp			
The lamp does not light when the ignition switch is set to "ON".	Blown off fuse or faulty contact.	Check the fuse for fusing and faulty contact.	Repair or replace as required.
	Burnt out light bulb filament or faulty cable contact.	The pilot lamp does not light when the voltage regulator connector is disconnected, the white/red cable is grounded and the ignition switch is set to "ON".	Check the bulb for burnt out filament, and replace as required.

The lamp does not go out when the engine is started.	Faulty charging system	Inspect the charging system.	

WINDSHIELD WIPER AND WASHER

CONTENTS

Description BE-26
Wiper motor replacement BE-27
Wiper blade operating range BE-27
Wiper-washer switch replacement BE-27
Washer nozzle adjustment BE-27
TROUBLE DIAGNOSES AND CORRECTIONS BE-28

Description

The windshield wipers consist of wiper motor, link mechanism, wiper arms and blades, and the wiper motor unit consists of a motor and auto-stop mechanism. The wiper motor is of a 2-speed type.

When the wiper switch knob is pulled to the 1st step, the windshield wipers operate at low speed, and when pulled to the 2nd step, operate at high speed.

The wiper motor unit is located on the cowl dash in the engine compartment, and the link mechanism is located behind the instrument panel.

The electrically operated windshield washer consists of washing fluid tank (with motor and pump), washer nozzles, and vinyl tube used to connect those components.

The windshield washer switch is combined with the windshield wiper switch to a single unit. When operating the washer, twist the switch knob.

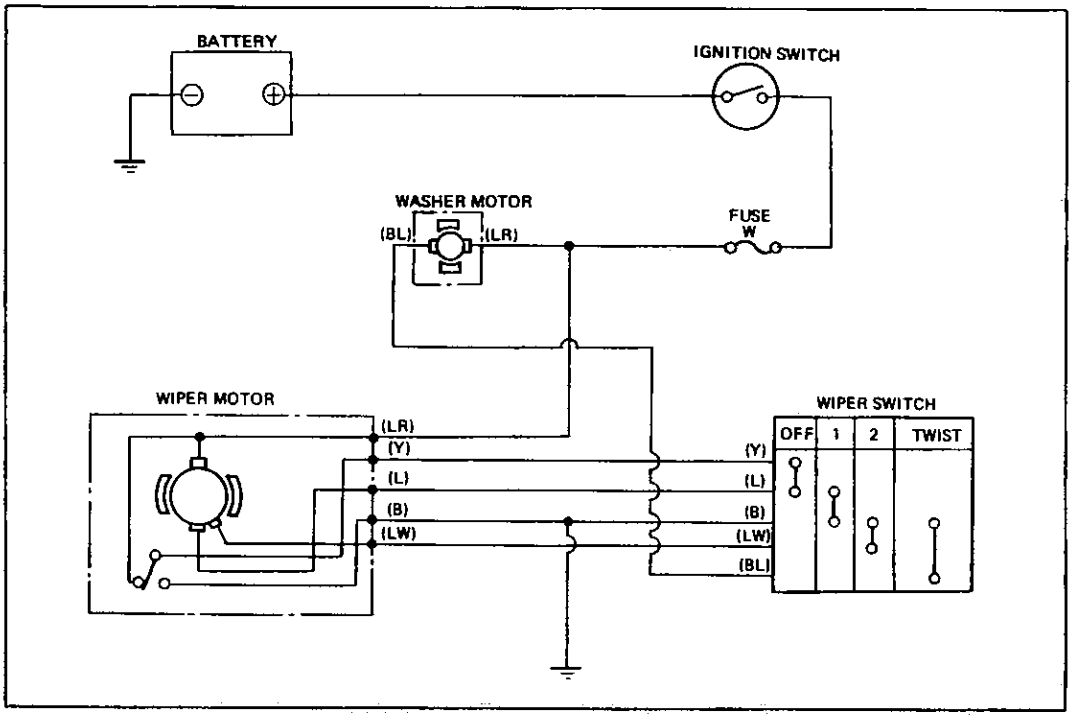


Fig. BE-43 Circuit diagram for windshield wiper-washer system

Wiper motor replacement

1. First of all, remove the connector plug from the wiper motor.

2. Remove a nut used to connect wiper motor worm wheel shaft to the connecting rod, from passenger compartment side dash panel.

3. Loosen three bolts used to install the wiper motor on the cowl dash, remove the wiper motor.

4. Reinstall a new wiper motor in reverse sequence of removal.

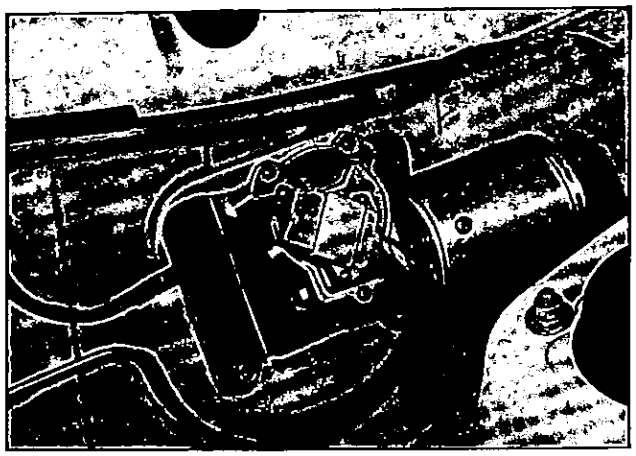


Fig. BE-44 Wiper motor

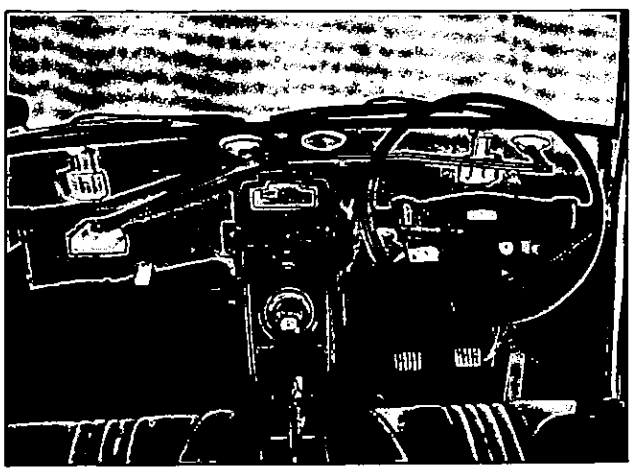


Fig. BE-45 Wiper motor linkage

Wiper blade operating range

When removing the wiper arm, loosen the wiper arm attaching nut, and pull out the wiper arm from the pivot shaft. When installing the wiper arm on the pivot shaft, provide the arm with a proper installation angle so that the windshield wiper blade is positioned correctly. The wiper arm attaching nut tightening torque is 60 ±5 kg-cm (434 ±36.2 lb-ft).

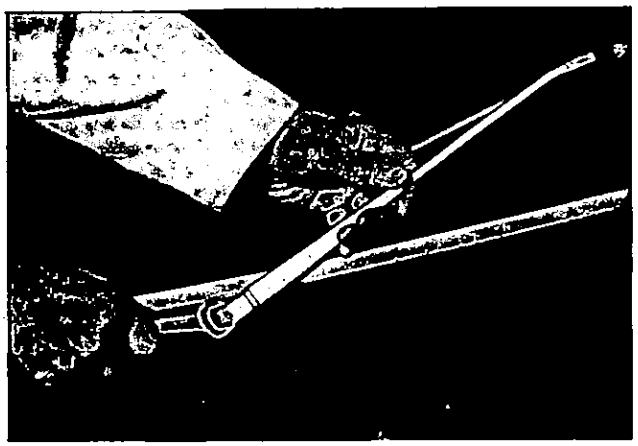


Fig. BE-46 Removing wiper arm

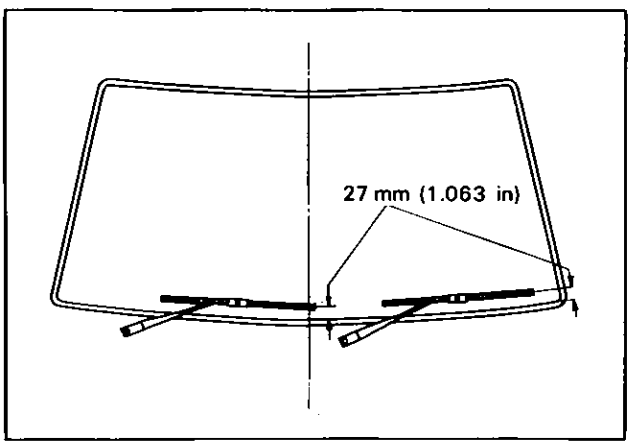


Fig. BE-47 Wiper arm installation

Wiper-washer switch replacement

1. Remove the connector from back of the wiper-washer switch.

2. Depressing and turning the wiper switch knob counterclockwise, remove it.

3. Loosen the escutcheon, and remove the wiper switch from the cluster lid.

Washer nozzle adjustment

When the washer nozzle is installed or when washer fluid is not sprayed properly, adjust the nozzle direction so that fluid is sprayed in range indicated in Figure BE-48.

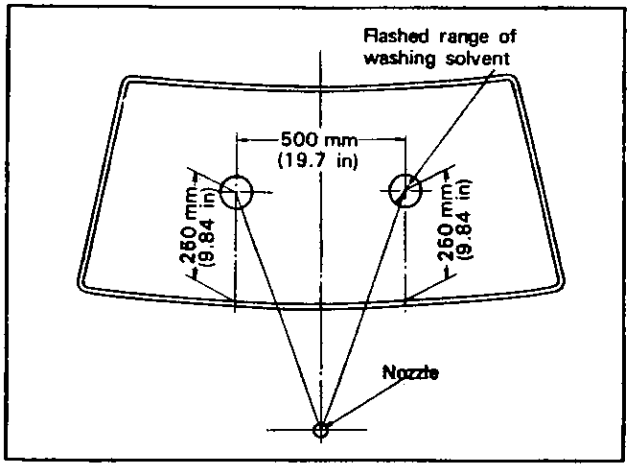


Fig. BE-48 Adjusting washer nozzle

Caution in use of washer

1. Never operate the washer continuously for more than 30 seconds or without the washing liquid. This often causes the washer's improper operation. Normally, the washer should be operated for less than 10 seconds at time.

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Wiper system does not operate.	Open or short circuit of feed harness.	Repair harness.
	Blown off fuse or improper fuse contact	Replace or correct fuse position.
	Improper connector contact.	Correct contact.
	Defective control switch.	Replace control switch.
	Defective motor	Replace motor
Slow rotation of wiper motor.	Rotating part is out of lubricant.	Lubricate rotating part.
	Defective motor	Replace motor.
Wiper speed does not change	Defective switch or improper switch contact.	Replace or repair switch.
Wiper does not stop.	Improper switch contact.	Replace or repair switch.
	Improperly grounded switch.	Repair.
	Improper adjustment of auto-stop point.	Replace motor.
Noisy wiper motor.	Defective motor	Replace motor.

Improper stop position of wiper arm.	Improperly positioned blade and arm. Damaged or worn auto-stop point.	Correct position. Replace motor
Improper wiping.	Worn rubber blade. Inadequate pressing force of wiper arm.	Replace blade. Replace wiper arm.

IGNITION SWITCH AND STEERING LOCK

CONTENTS

IGNITION SWITCH BE-29
Removal BE-29
IGNITION SWITCH WITH STEERING LOCK BE-29
Description BE-29
Steering lock replacement BE-30
Warning switch and warning buzzer BE-30

IGNITION SWITCH

This 3-position switch is installed on the ignition switch bracket, which is installed on the instrument panel with two screws, and controls the engine ignition system and most of electrical equipment.

Key position / Terminal	OFF	ON	START
B (Battery)		○	○
IG (Ignition)			○
S (Starter)			○
R (Resistance)			○

Removal

Remove the ignition switch connector, loosen the ring nut, remove the ignition switch from the bracket.

Fig. BE-49 Removing ignition switch

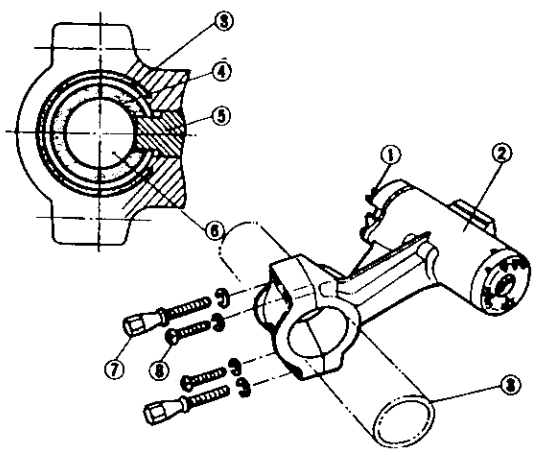
IGNITION SWITCH WITH STEERING LOCK

Description

The steering lock is built-in the ignition switch. When the key is set to "Lock" position and removed, the steering system is locked automatically. The locking

mechanism is installed on the steering jacket tube. When the key is set to "Lock" position and removed, the steering lock spindle is inserted in a notch in the collar which is stationarily set on the steering shaft to lock the steering wheel.

The ignition switch is installed on the back of key cylinder with a attaching screw and interchangeable.



1	Ignition switch part	5	Lock spindle
2	Key cylinder part	6	Steering shaft
3	Steering jacket tube	7	Self-shear type screw
4	Lock collar	8	Attaching screw

Fig. BE-50 Steering lock

Key position / Terminal	Lock	OFF or GARAGE	ON	START
B (Battery) IG (Ignition) S (Starter) R (Resistance)			○ ○	○ ○ ○ ○

Steering lock replacement

For the purpose of tamper-proof, the self-shear type screws are used, and their heads are sheared off when installed so that the steering lock system cannot be removed easily. Replace the steering lock proper in accordance with the following instructions when required.

Loosen two attaching screws, and break the remaining two self-shear type screws with a drill or other proper tool. Now, remove the steering lock proper from the steering jacket tube. When installing a new steering lock proper, be sure to tighten two new self-shear type screws to shear off their heads.

Warning switch and warning buzzer

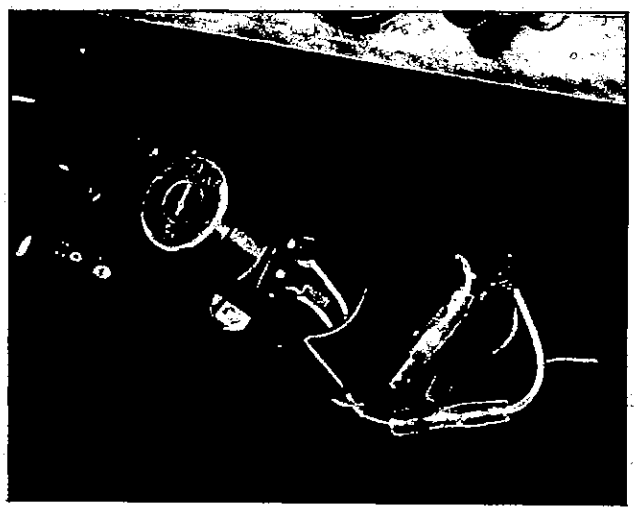


Fig. BE-51 Warning switch

The circuit of this warning system is closed when the door is opened with the steering unlocked because the door switch and warning switch are connected in series. When the cicuit is closed, the buzzer sounds.

When replacing the warning switch, disconnect two cables, remove the cap, loosen two attaching screws, and remove the warning switch.

The warning buzzer is installed on the back (left side) of the instrument panel with two attaching screws.

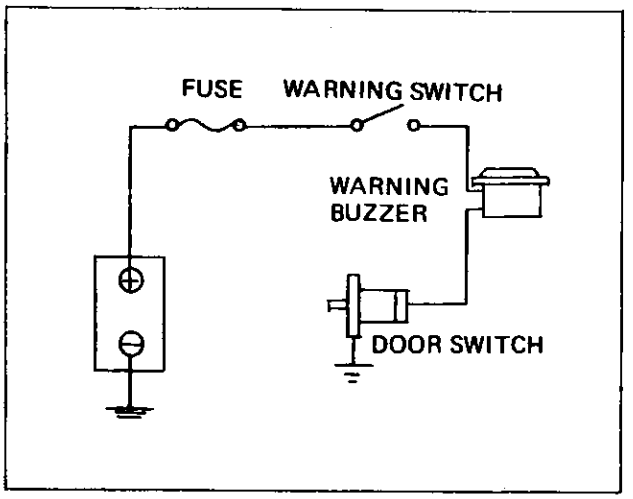


Fig. BE-52 Circuit diagram for warning system

CLOCK

Installation

1. When installing clock, first of all, remove the cluster lid.

2. Remove the mask, and install the clock on the cluster lid in the place of mask.

3. Connect blue cable (or yellow/red cable) coming out from the clock to the blue cable of harness laid along upper portion of the instrument panel.

Connect red/blue cable (or red/green cable) for illumination lamp of the clock to the terminals on the printed circuit board for illumination lamp on the meter housing.

Ground the clock ground cable. In the case of a square type clock, tighten the ground cable together with the meter housing installation screw.

4. Reinstall the cluster lid.

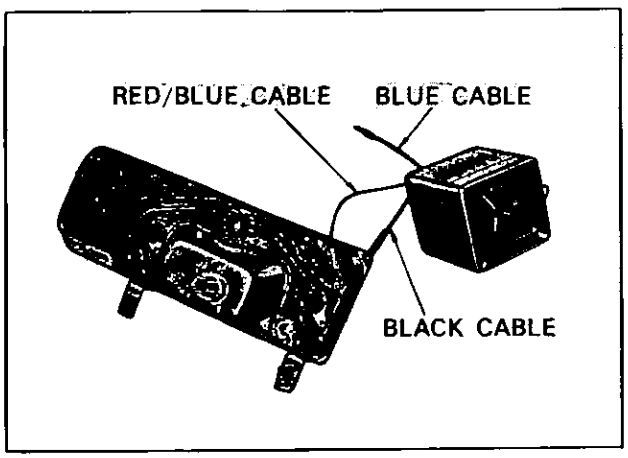


Fig. BE-53 Square type clock

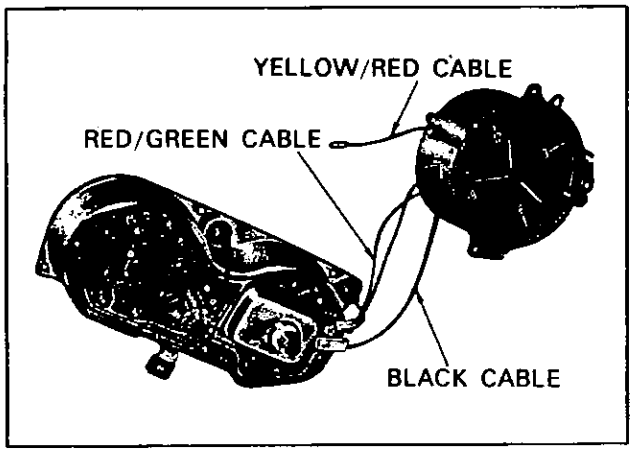


Fig. BE-54 Round type clock

TACHOMETER

Installation

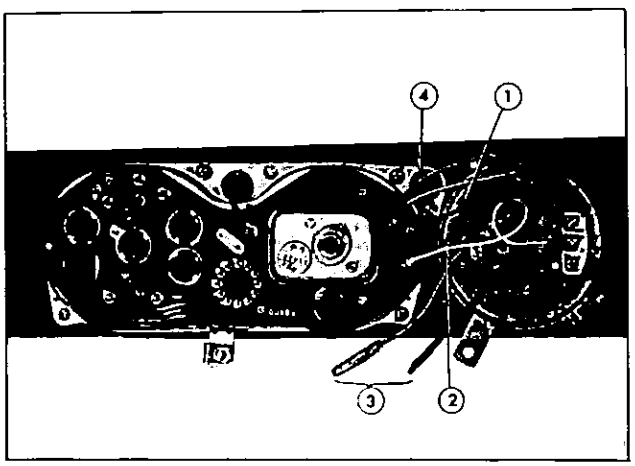
1. When installing tachometer, first of all, remove the cluster lid.

2. Remove the mask, and install the tachometer in place of the mask.

3. Connect cables as shown in the Figure BE-55.

Remove the black/white cable plug of the harness laid along the upper portion of the instrument panel, and connect the black/white cable of the tachometer to the plug in series.

4. Reinstall the cluster lid.



1	Black cable	3	Black/white cable
2	Yellow/red cable	4	Red/green cable

Fig. BE-55 Installing tachometer

RADIO

Removal

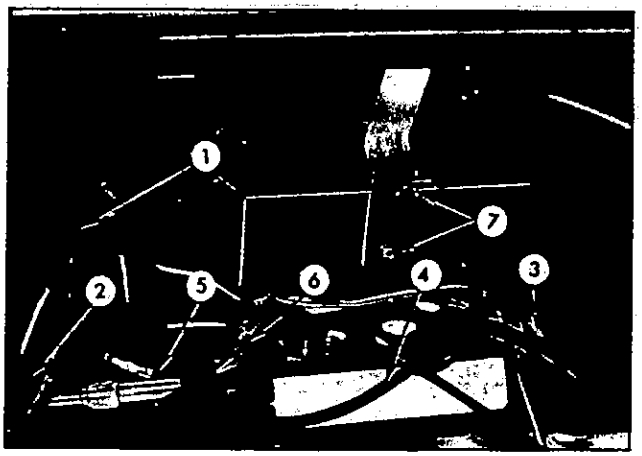
1. Remove the cluster lid.

2. Disconnect the lead wires from the radio.

3. Remove two nuts used to install the front side of the radio on the instrument panel.

4. Loosen two screws as shown in the Figure BE-56, and remove the bracket used to install the rear side of the radio on the instrument panel.

5. Remove the radio.



1	Power source cable (Blue/white cable of harness)	4	Antenna cable
2	Power source cable (Radio)	5	Single pole fuse
3	Speaker cables	6	Spare fuse
		7	Attaching screws

Fig. BE-56 Removing radio

Noise prevention chart

Run the engine, raise the antenna, set volume to maximum and set the dial at a medium point without catching broadcasting wave.

Condition	Apparent cause	Repair
Ignition system Noise occurs when engine is operated.	High tension code.	High tension code may be disregarded, because noise suppressor is used.
	Ignition coil.	Apart the choke wire from the ignition coil as far as possible. Install a 0.5 μF capacitor in primary side + terminal of ignition coil. **Note: Be careful not to install capacitor in secondary or primary breaker side, or otherwise the engine becomes improper.** Connect wire between engine and ignition coil locating area of body with bond.

		Secure ground of ignition coil.
	Distributor	Secure contact of carbon electric pole and rotor. Eliminate excessive tip on the rotor pole or cap pole by scrubing with a screwdriver. Check stagger between rotor and stator.
Charging system Sound of alternating current presents.	Alternator.	Install a 0.5 μF capacitor on charging terminal A. **Note: Do not use capacitor excessively. If capacity is used excessively, the alternator coil will be broken.**
When the accelerator pedal is depressed or released, noise presents.	Regulator.	Install a 0.5 μF capacitor on "A" terminal of the voltage regulator.
Supplement equipment When engine starts, noise presents. Noise still presents even after stopping the engine.	Operative noise of thermometer and fuel gauge.	Install 0.1 μF capacitor between terminal and ground wire. **Note: If a capacitor having excessive capacity is used, indication of meter will be deviated.**
Noise presents when horn is blown.	Horn	Install a 0.5 μF capacitor on the horn relay terminal or horn switch.
Noise presents when turn signal lamps are operated.	Flasher unit.	Install a 0.5 μF capacitor.

Note: a. Be sure to locate capacitor most near position of noise source and connect in parallel.

b. Cut lead wire as short as possible.

c. Ground wire should be placed on the body completely.

d. Make installation and connection securely.

e. Carefully identify "+", "-", "IN" or "OUT" marks.

HEATER

CONTENTS

Removal and installation BE-35
TROUBLE DIAGNOSES AND CORRECTIONS BE-35

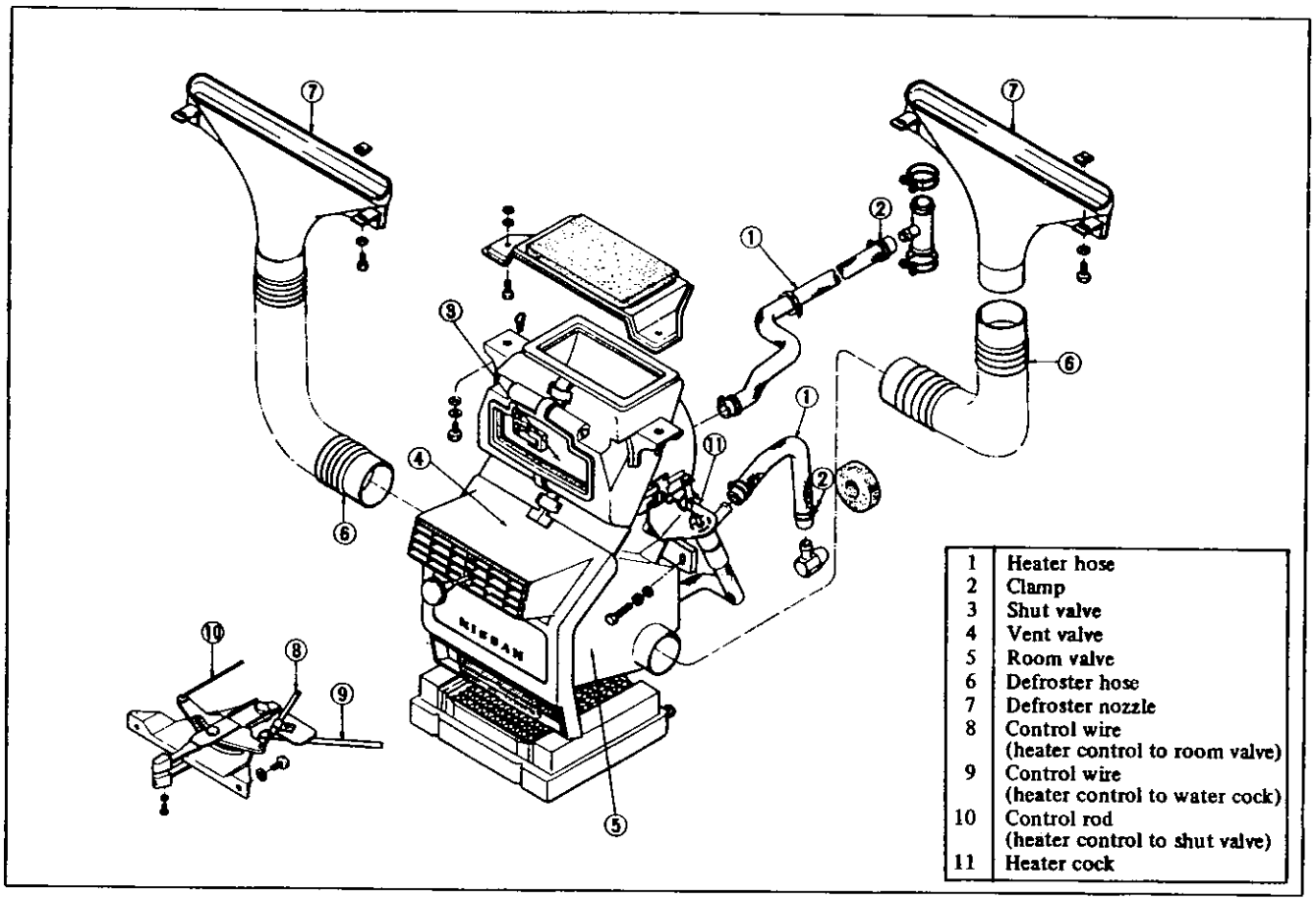

1 Heater hose
2 Clamp
3 Shut valve
4 Vent valve
5 Room valve
6 Defroster hose
7 Defroster nozzle
8 Control wire (heater control to room valve)
9 Control wire (heater control to water cock)
10 Control rod (heater control to shut valve)
11 Heater cock

Fig. BE-57 Heater unit

Removal and installation

1. In order to ease the operation, remove the package tray and ash tray.

2. Loosen the hose clamps and disconnect two heater hoses between the heater unit and engine at the engine side. Remove the hose clamps from the heater hoses.

3. Disconnect cables from the heater unit, heater control, and main harness.

4. Remove the wire clamps and disconnect two control wires between water cock and heater control, and room valve and heater control at the heater unit side. Disconnect the control rod from the shut valve.

Note: When carrying out this operation, be sure to set the heater control upper lever to "DEF" and lower lever to "OFF".

5. Withdraw two (left and right) defroster hoses by hand.

6. Loosen four attaching screws used to install the

heater unit on the dash board, and remove the heater unit carefully.

7. When removing the heater control from the instrument panel, remove the control knob and loosen two screws used to install the heater control on the instrument panel.

8. Remove two self-tapping screws from back of the instrument panel, and remove the defroster nozzle.

9. The heater unit is installed in reverse sequence of removal.

TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Remedies
Hot air does not come out.		
Motor does not operate.	Open or short circuit of feed harness.	Check and repair wiring harness
	Defective switch.	Conduct continuity test and if required, replace switch.
	Defective motor.	Replace motor.
Fan cannot be rotated smoothly by hand.	Motor journal is out of lubricant or stick.	Lubricate journal. Replace motor.
Hot air dose not come out nevertheless fan is rotating.	Slow rotation of fan.	Replace motor.
	Loose fan installation.	Repair.
Air temperature is low.		
Hot water does not circulate.	Defective water pump.	Repair water pump.
	Bent or clogged of connecting hose.	Repair or clean piping.
	Defective hot water cock.	Repair.
	Air is left in the hose.	Purge air out of hose.
Water temperature is too low.	Defective thermostat.	Replace thermostat.
Water leakage from heater.	Defective water hose.	Replace water hose.
	Loose clipping of water hose.	Retighten clip.
	Improper soldering of heater core.	Solder leaking position.
Defective defroster.	Disconnected defroster hose.	Correct connection.
	Bent or broken defroster hose.	Correct or replace.

Vibrating noise.	Loose heater support. Loose fixing screw.	Tighten completely. Retighten.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN 1200
MODEL B110 SERIES
CHASSIS & BODY

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION SE

SERVICE EQUIPMENT

SPECIAL SERVICE TOOL ..... SE- 1

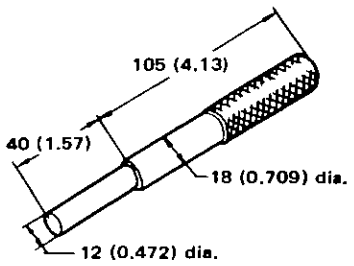
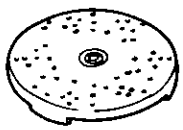
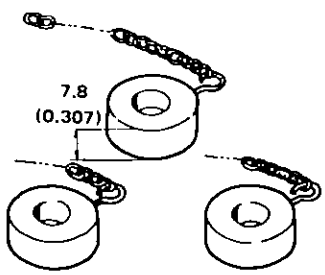
SE

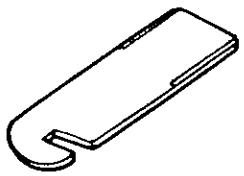
SPECIAL SERVICE TOOL

B110 special service tool set number: Set A ST09330000, Set B ST09340000

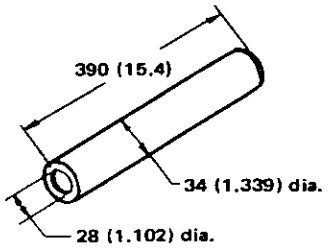
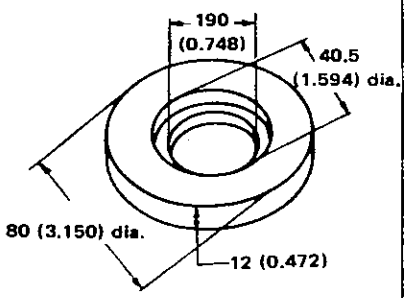
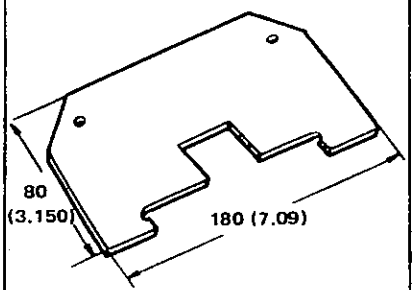
510 special service tool set number: ST09110000

"*" means tool included in Tool Set ST09330000.
"**" means tool included both in Tool Sets ST09330000 and ST09340000.
"#" means tool included in Tool Set ST09110000.

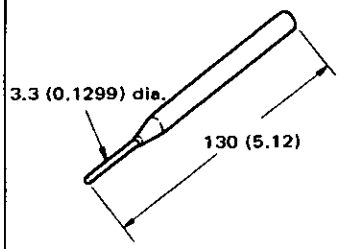
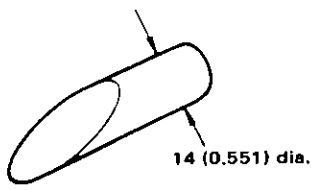
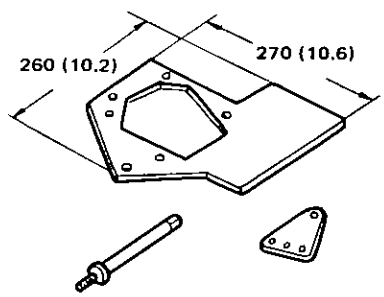
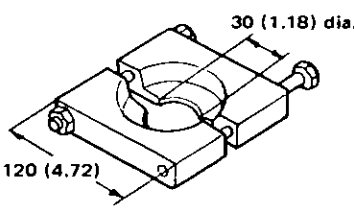
Tool number / Tool name	Figure / mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
Clutch tool						
ST20610000 Clutch aligning bar		For centering the clutch disc	**		B10 B20	Fig. CL-14
ST20101000 Clutch assembly base plate		For measuring the diaphragm spring height (Use with the distance piece)	**		B10 B20	Fig. CL-5 Fig. CL-7
ST20058001 Clutch assembly distance piece		For measuring the diaphragm spring height (Use with the base plate)	*		510 521 130 C30 S30	Fig. CL-5

Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	S10 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST20105000 Diaphragm adjust wrench		For measuring the diaphragm spring height	**		B10 B20	Fig. CL-7

Transmission tool

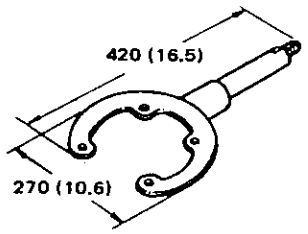
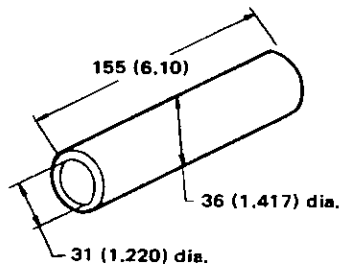
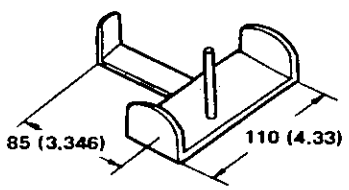
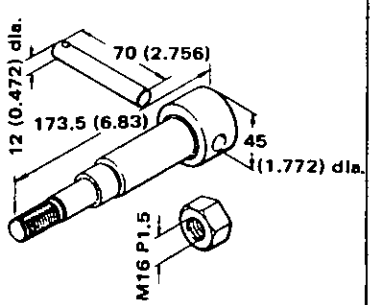
ST22350000 Main shaft bearing drift		For assembly of the main shaft bearings	**		B10 B20 130 A30	Fig. TM-35
ST23030000 Counter shaft bearing press stand		For assembly of the counter shaft bearings	**		B10 B20	Fig. TM-29
ST23050000 Counter gear height gauge		For measuring the counter bearing height from the transmission case rear end	**		B10 B20	Fig. TM-30

SERVICE EQUIPMENT

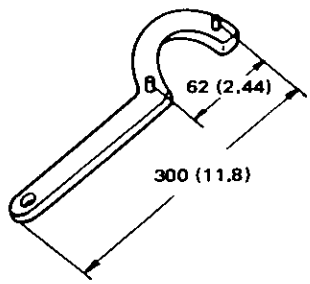
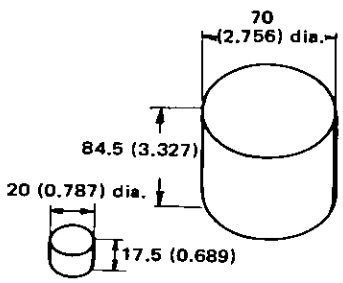
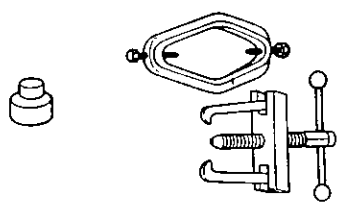
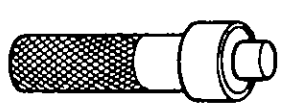
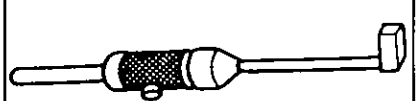
Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST23520000 Fork rod pin punch		For removal of the fork rod retaining pins	**		B10 B20	Fig. TM-16 Fig. TM-18
ST23620000 Fork rod guide		For supporting the inter lock ball when installing the fork rod	**		510 C10 B10 B20 521 C30	Fig. TM-41
ST23820000 Adapter setting plate		Setting plate of the transmission gear assembly	**		B10 B20	Fig. TM-15
ST22730000 Bearing puller		For removing the transmission main, counter and drive shaft bearings	**		B10 B20	Fig. TM-22

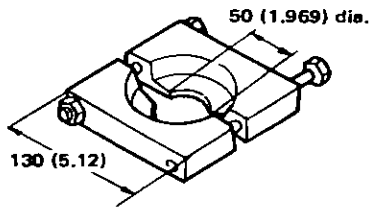
Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)

Differential carrier tool

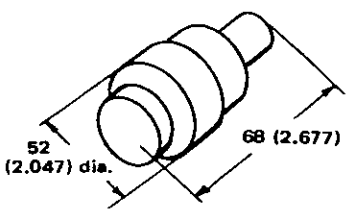
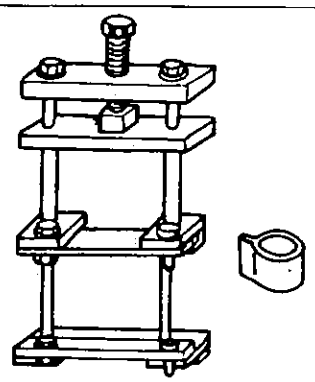
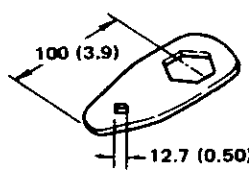
ST06220000 Differential gear carrier attachment		Setting tool of gear carrier (Use with engine stand)			B10 B20	Fig. PD-6
ST30600000 Drive pinion bearing drift		For installing the drive pinion rear bearing inner race	**		B10 B20 130 A30 S30	Page PD-11
ST31120000 Drive pinion arrangement gauge		For height adjustment of the drive pinion	**		B10 B20	Fig. PD-22
ST31230000 Dummy shaft		For hiehgt adjustment of the drive pinion.	**		New	Fig. PD-22

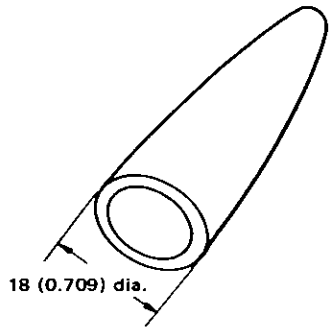
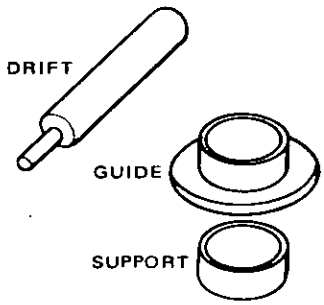
SERVICE EQUIPMENT

Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST31540000 Drive pinion flange wrench		For removal of the drive pinion nut	**		B10 B20	Fig. PD-12
ST32500000 Side bearing adjust weight		For determining the side bearing adjust shim	**		B10 B20	Fig. PD-25
ST33010000 Differential side bearing puller assembly		For removing the differential side bearing (Use with adapter ST33011000)	*		B10 B20 C10 130 521 V510	Fig. PD-9
ST33220000 Differential side bearing drift		For assembly of the side bearing	**		B10 B20	Fig. PD-19
ST31190000 Drive pinion preload gauge		For measuring the drive pinion pre-load	**		B10 B20	Fig. PD-21

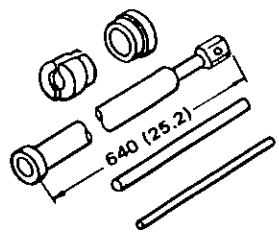
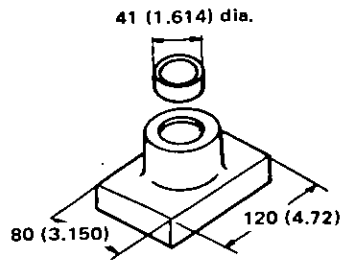
Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST30031000 Drive pinion rear bearing inner race replacer		For removing the drive pinion rear bearing inner race			B10 B20 510 C10 C30 S30	Fig. PD-13

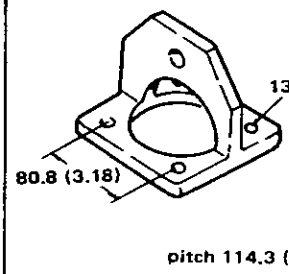
Front axle and suspension tool

ST35310000 Front wheel hub bearing outer race drift		For removing and installing the front wheel hub bearings	**		B10 B20	Fig. FA-22
ST35650000 Coil spring compressor set		For assembly and disassembly of the coil spring	**		New 510 C10 C30 S30	Fig. FA-32
ST35500000 Gland packing wrench	 width across flats; 55 (12.7)	For tightening the gland packing	*	#	510 C10 C30 S30	Fig. FA-34

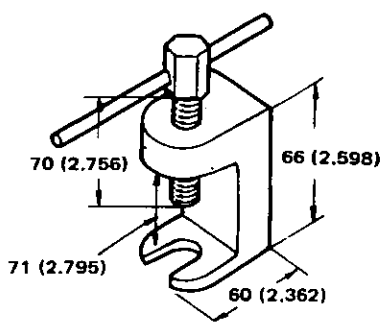
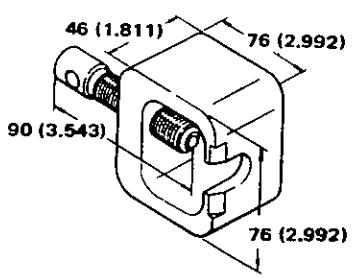
Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST35550000 Gland packing guide		For assembly of the gland packing	**		New	Fig. FA-39
ST36720000 Front transverse link bushing replacer set		For remving and installing the transverse link bushing	**		New	Fig. FA-53

Rear axle and suspension tool

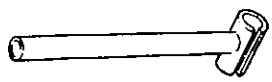
ST37130000 Rear axle shaft bearing puller		For remving the rear axle shaft bearing	**		B10 B20	Fig. RA-5
ST38270000 Rear axle shaft bearing and collar press stand set		For installing the rear axle shaft bearing and collar	**		B10 B20	Fig. RA-7

Tool number Tool name	Figure mm (inch)	Description	B110 special service tool set	S10 special service tool set	Applied model	S.M. reference page (See Fig. No.)
ST07640000 Rear axle stand		For removing the rear axle shaft (Use with sliding hammer ST36230000)	*		B10 510 C10 C30 S30	Fig. RA-3 Fig. RA-7
ST36230000 Sliding hammer		Use as hammer by sliding the weight	*		All	Fig. RA-3

Steering tool

ST27140000 Steering gear arm puller		For removing and installing the steering gear arm	*		B10 510 521 B20	Page ST-3
ST27190000 Steering linkage joint puller		For assembly and disassembly of the steering linkage	**		B10 B20	Page ST-14

SERVICE EQUIPMENT

Tool number Tool name	Figure mm (in)	Description	B110 special service tool set	510 special service tool set	Applied model	S.M. reference page (See Fig. No.)
Body tool						
ST08710000 Torsion bar wrench		For removing and installing the tail gate torsion bar	*		New	Page BF-20 BF-23

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